

STATE LIBRARY OF PENNSYLVANIA



3 0144 00648825 8

STATE LIB.

OF PA.

191 25-10-12
P924N
Sept. 1972

STATE LIBRARY OF PENNSYLVANIA
George W. Brown Building
Second Floor, Room 200

PY T 2356.2
P924r

PENNSYLVANIA STATE LIBRARY
DOCUMENTS SECTION

322 3 079

CHAPTER 1

CHAPTER 2

CHAPTER 3

CHAPTER 4

Preliminary Evaluation of

REAL PROPERTY TAX REFORM OPPORTUNITIES



**Commonwealth of Pennsylvania
September 1972**

This is one of the following interrelated reports prepared by McKinsey & Company, Inc., for use by the Governor's Tax Reform Committee:

1. Economic Environment for Tax Reform
 2. Analysis of Pennsylvania's Personal Income Distributions
 3. Reforming Pennsylvania's Personal Income Tax
 4. Preliminary Evaluation of Major Sales Tax Reform Opportunities
 5. Preliminary Evaluation of Real Property Tax Reform Opportunities
 6. Preliminary Evaluation of Corporate Tax Reform Options
- (Appendix: Base Cases for the Analysis of Corporate Tax Options)

These reports are preliminary analyses to serve as working tools for the Tax Reform Committee. They do not represent either McKinsey's or the Tax Reform Committee's recommendations.

To permit making these reports available to the Committee promptly, the exhibits have been presented in their original hand-drawn form.


CHAPTER 1

CHAPTER 2

CHAPTER 3

CHAPTER 4

CHAPTER 5



Digitized by the Internet Archive
in 2017 with funding from

This project is made possible by a grant from the Institute of Museum and Library Services as administered by the Pennsylvania Department of Education through the Office of Commonwealth Libraries

PRELIMINARY EVALUATION OF
REAL PROPERTY TAX REFORM OPPORTUNITIES

COMMONWEALTH OF PENNSYLVANIA

TABLE OF CONTENTS

	<u>Page</u>
<u>INTRODUCTION</u>	1
<u>DESCRIPTION OF THE CURRENT TAX SYSTEM</u>	
Establishing the Tax Base	1 - 3
Setting Tax Rates	1 - 5
<u>THE ROLE OF PROPERTY TAXES IN FUNDING LOCAL GOVERNMENT</u>	
School Districts	2 - 2
State Aid	2 - 3
School District Property Taxes	2 - 6
Municipalities	2 - 8
Counties	2 - 10
<u>PROBLEMS IN SCHOOL FINANCING THROUGH LOCAL PROPERTY TAXES</u>	
Tax Base Concentrations	3 - 3
Variations in Tax Rates	3 - 5
Variations Among Counties	3 - 5
Variations Within Counties	3 - 7
Relating Rates and Bases	3 - 8
<u>EVALUATION OF CURRENT PROPERTY TAX SYSTEM</u>	
Incidence or Vertical Equity	4 - 3
Tax Incidence Without Federal Offset	4 - 5
Tax Incidence After Federal Offset	4 - 7
Summary	4 - 9
Horizontal Equity	4 - 10
Owner Versus Renter	4 - 11
Different Size Families	4 - 14
Elasticity	4 - 15
Components of Change in Assessed Values	4 - 16

TABLE OF CONTENTS
(Continued)

	<u>Page</u>
<u>EVALUATION OF CURRENT PROPERTY TAX SYSTEM</u>	
(Continued)	
Increases in Market Values	4 - 21
Summary	4 - 23
Neutrality and Economic Growth	4 - 24
Discrimination Against Intensive Land Use	4 - 25
Effect on Investment Decisions	4 - 26
Contribution to Housing Decay	4 - 28
Impact of Property Tax Increases on Future Economic Growth	4 - 20
 <u>POLICY ALTERNATIVES FOR THE REFORM OF THE PROPERTY TAX SYSTEM</u>	
School Funding and Statewide Rates	5 - 6
Uniform Statewide Tax Rates for Education	5 - 7
Lower Statewide Rates for Education	5 - 9
Statewide Rates for Education Frozen at Current Levels	5 - 10
Progressive Rates	5 - 12
Credits and Exemptions	5 - 15
Credits	5 - 16
Exemptions	5 - 18
Administration	5 - 19
Taxing Equalized Values	5 - 20
Other Administrative Options	5 - 23

TABLE OF CONTENTS
(Continued)

Exhibits

- 1 - The Current Property Tax System is Very Complicated
- 2 - School Funding is Derived From Many Sources
- 3 - Local School District Revenues May Be Both Tax and Non-Tax-Related
- 4 - Schematic of Equalization Procedures
- 5 - The State's Basic Instructional Subsidy Declines With Increasing School District Property-Wealth
- 6 - Federal Aid to School Districts Has Grown More Than Twice as Fast as Other Revenue Sources
- 7 - The Locally Financed Share of School District Budgets Has Declined Persistently
- 8 - Nontax Revenues Have Varied Between 1.5 and 7.0 Percent of Local Revenues
- 9 - Property Tax Revenues Have Contributed About 77 Percent of Local School District Revenues
- 10 - As a Result, Property Taxes, as a Share of Total Revenues, Declined
- 11 - Twenty Percent of the Counties Account for 68 Percent of Total Market Value of Property
- 12 - Market Value Per Pupil Ranges From \$8,700 to \$37,000
- 13 - Nominal Property Tax Rates Range From 21 to 109 Mills
- 14 - Assessment Ratios Range From 18 to 68 Percent
- 15 - Thus, Effective Rates Range From 8 to 26 mills

TABLE OF CONTENTS
(Continued)

- 16 - Within Allegheny County, Effective Rates Range
From 21 to 56 Mills
- 17 - Ranking of Counties by Base and Effective Rate
- 18 - Location of Counties by Rate/Base Category
- 19 - Relative Property Tax Burden Declines as Income Rises
- 20 - Federal Deductability Increases Slightly the Regressivity
of the Tax
- 21 - Property Taxes Are Regressive for Both Owners and Renters
- 22 - Renter Households Are Concentrated in Lower Income
Brackets
- 23 - Owner Incidence Patterns
- 24 - Renter Incidence Patterns
- 25 - Increases in Residential Assessed Value Are a Large Part
of Total Assessed Value Gains
- 26 - For All Classes of Property, Assessment Ratios Have
Been Falling
- 27 - Residential
- 28 - Commercial
- 29 - Industrial
- 30 - The Addition of a Shopping Center to a Municipality's Tax
Base Would "Pay Off" if the Additional Servicing Cost Were
Less Than \$7,200 a Year
- 31 - Schematic of Builder's Investment Decision
- 32 - Without Reform, Increase in Property Tax Rates Will
Reach 3.5 Mills Per Dollar of Market Value Per Year

TABLE OF CONTENTS
(Continued)

- 33 - Relationship Between Policy Options and Property Tax Problems
- 34 - With a Uniform State Tax Rate . . .
 - . . . Larger Counties Would Pay Lower Rates . . .
 - . . . Rural and Declining Counties Would Pay Higher Rates
- 35 - A Progressive Rate Structure Improves Property Tax Incidence
- 36 - Credits for One-Person Households Improve Property Tax Incidence for Homeowners
- 37 - Exempting the First \$5,000 of Assessed Property Value Significantly Improves the Incidence of the Tax
- 38 - Sales Prices in Excess of Market Values Could Be Taxed To Recover Unrecorded Price Appreciation

Appendixes

- A - Estimating the Distribution of Households By Income, Household Size and Rent or House Value
- B - Results of Incidence Analysis
- C - Property Data Base for Municipalities

PRELIMINARY EVALUATION OF
REAL PROPERTY TAX REFORM OPPORTUNITIES
COMMONWEALTH OF PENNSYLVANIA

INTRODUCTION

Real property taxes are the largest source of tax revenue for financing government services within the Commonwealth of Pennsylvania. In 1970, real property taxes raised over \$2 billion in revenue for local governments within the State - a very significant amount compared to the State government's total tax receipts of \$3 billion in the same year. These revenues are used almost exclusively to fund local (rather than State) government services, and in 1970 accounted for 25 percent of the total revenues of all governmental jurisdictions in Pennsylvania - including both State and local governments. More importantly, they provided about 67 percent of total local tax revenue in the State in 1970.

Despite their historical and present importance as a source of revenue for local governments, real property taxes have been subjected to considerable criticism on several different fronts; all have been based on fundamental deficiencies in the tax. Some of the major problems with the tax are listed below:

- ¶ Property taxes are inelastic: To meet their rapidly increasing revenue needs in recent years, local governments have been forced to increase property tax rates dramatically. Seemingly inexorable increases in rates have given rise to significant and unmistakable

taxpayer resistance (termed by some a taxpayers' revolt.) Moreover, despite property tax rate increases averaging about 5 percent a year in Pennsylvania, local governments have been forced to find other sources of revenue for funding essential local services previously supported almost solely by the property tax.

¶ Property taxes are highly inequitable: Wealth holdings in the form of real property are not a good proxy for "ability-to-pay." As a result, property taxes impose a heavier burden on the poor than on the rich, penalize large families compared to small families, and do not fairly reflect the different economic situations of renters as compared to homeowners.

¶ Property taxes have inhibited orderly economic growth: Based as they are, in large measure, on the value of improvements to real property holdings, property taxes penalize dense land usage. The spread of urban blight through the core of older cities is attributed by some to be due in part to a tax system which discourages investments designed to improve and maintain property holdings. The tendency for commercial and industrial firms to seek locations on the fringes of existing population centers is at least partly the result of companies seeking lower tax environments. This, at the same time, contributes to the fiscal problems of American cities.

¶ Property taxes are difficult (if not impossible) to administer fairly:

To determine the tax base, detailed records must be kept on the "value" of each parcel of property subject to taxation. Because of the local character of the tax, these records are maintained, for the most part, on a county-by-county basis - with each county responsible for hiring assessors and ensuring the fairness of assessment procedures. The inherent difficulties in the assessment process, the staggering size of the task and the differences in local government approaches and capabilities, result in highly uneven treatment of individual taxpayers - and, as a result, relatively nonuniform tax burdens even within a single taxing jurisdiction.

In addition to these fundamental shortcomings in the tax, recent court decisions have questioned the constitutionality of local property taxes as a means of funding primary and secondary education. Beginning with the California Supreme Court decision in the landmark Serrano versus Priest case, four state courts have ruled that the use of local property taxes to fund education denies "equal opportunity" because of the highly uneven distribution of real property wealth across a state. If this argument based on the inherent lack of "fiscal neutrality" in local property taxes is upheld by the United States Supreme Court, the role of property taxes in financing education will have to be fundamentally restructured.

Despite the many problems with real property taxation as a means of raising funds for public purposes, discussions of possible reforms in real property

taxes should not lose sight of the strengths of this tax form. First, real property taxes have for many years been the mainstay of local tax systems. As a source of funds the tax is both productive (in terms of revenue) and dependable (property values have historically been somewhat less subject to economic fluctuations than other revenue sources such as income). Moreover, real property taxes are relatively efficient. Losses during collection (or through delinquencies) have historically been relatively minor. These strengths of the real property tax system - strengths especially in comparison to other tax forms - suggest that real property taxes will continue to be an important part of the total tax system even though they will probably decline in relative importance. Nevertheless, a number of shortcomings in the tax do warrant tax reform attention. This report aims to provide the Tax Reform Committee with some key tools to assist it to overcome or reduce some of the real property tax's deficiencies.

This report reviews the problems in the property tax system in Pennsylvania and discusses some of the types of reform that might be undertaken to correct them. The report contains five chapters, as follows:

1. Description of the current tax system
2. Role of property taxes in funding local government
3. Problems in school financing through local property taxes
4. Problems in the nature of real property taxes themselves
5. Preliminary evaluation of major reform options.

In addition, there are three appendixes to the report. The first contains a detailed description of the methodology we used in evaluating Pennsylvania's property taxes. The second contains the detailed results of our tax incidence calculations for the current tax and for two reform options discussed in the report. The third contains a description of the automated data base we developed in the course of the project, and a brief description of the computer programs now available for manipulating that data base.

In certain respects, this report (and the analysis of real property taxation in Pennsylvania we have done to date) is incomplete. We have not discussed property taxes used in special taxing districts (e. g., fire, water) in the State. The report does not discuss quantitatively or in detail the problems in the administration of the State's current property taxes. In addition, we do not analyze the impact of current exemptions from real property taxes - e. g., distribution of tax-exempt property. Finally, the tax reform options discussed represent only a first cut at the kinds of reform Pennsylvania might consider.

The purpose of the report, however, is to stimulate discussion among State officials and members of the Governor's Tax Reform Committee of possible approaches to reforming Pennsylvania's property tax system. The reform options discussed in the report, while not a complete set of options, do include many of the major alternatives available to the State. For example, in the fifth chapter, we discuss a Statewide uniform property tax, a Statewide tax with a progressive rate structure, implementation of an expanded set of credits or exemptions, and

strengthened administration through a broader State role. In short, this report represents a first step toward comprehensive property tax reform. Obviously a great deal more work will have to be done before complete and detailed tax reform proposals can be developed.

In light of the problems in Pennsylvania's current property tax system, some conclusions can be drawn about the kinds of reform that should be considered. In particular:

- ¶ Property tax reform should attempt to eliminate some or all of the inequities inherent in the current tax system.
- ¶ While not discussed in detail in this report, a key component of property tax reform must include some approach to improving and, if possible, simplifying the administration of property taxes.
- ¶ Any reforms considered should recognize the inherent lack of elasticity of real property taxation. The inability of the real property tax base to keep pace with rising prices, incomes and needs has led to continuing and substantial rate increases. Taxpayers need to be reassured that disproportionate increases will not continue indefinitely.
- ¶ A major component of property tax reform must involve finding an adequately fair and constitutional approach to funding primary and secondary education.

We have tried in this report to suggest ways that these objectives can be achieved. No one approach appears to solve all the problems with the tax.

Therefore, the first task facing State officials and members of the Tax Reform Committee is to identify the priority problems to be addressed first (e.g., regressive incidence). Then, from the various ways of attacking those problems suggested here and elsewhere, a general approach can be selected (e.g., credits instead of exemptions). Alternative ways of implementing that approach should then be developed and evaluated (e.g., credits based on age, age and income, or age and house value). Finally, one or more options might be recommended to the Governor. Only by such a detailed analysis of options and their probable impacts can comprehensive property tax reform in the State be achieved.

CHAPTER 1

CHAPTER 2

CHAPTER 3

CHAPTER 4

CHAPTER 5

1 - DESCRIPTION OF THE CURRENT TAX SYSTEM

In concept, the real property tax is a simple tax computed by applying a tax rate to the value of wealth holdings in the form of real property; in fact, the way the tax is used and administered makes it a complex and intricate tax. For example, to determine the base of the tax - the value of each parcel of real property - assessment procedures are required. Assessing value is a complex, difficult-to-standardize process. In Pennsylvania, the procedures to be used in determining the assessed value of real property for tax purposes are spelled out in a number of State laws (for a description of the applicable laws, please refer to the report of the O'Pake Committee). However, the existing statutes governing assessment practices still leave considerable room for interpretation. And since responsibility for assessments is delegated to the local level (counties), wide variations (and likely inequities) result. The use of only a fixed fraction of the market value of real property, or a fraction of the estimated market value in the "assessed" tax base probably adds further complexities.

Interlocal variations in rates add further complications. The property tax is truly a local tax. Over 5,000 local governments in Pennsylvania have a real property tax as part of their revenue structure. These include counties, school districts, municipalities, and variety of special districts (e.g., fire, water, sewer). Each of these governmental units sets its own tax rate independently to meet its own revenue needs in terms of mills per dollar of assessed value. Because many of these independent jurisdictions are not coincident - but overlap -

it is not surprising that wide variations in rates result: Homeowners in adjacent lots with identical property can well end up bearing different property tax burdens.

This chapter, therefore, briefly describes the workings of Pennsylvania's current real property tax system. Specifically, it covers: (1) establishing the tax base, and (2) setting tax rates. Subsequent chapters will analyze the impact of this system and suggest reform options.

ESTABLISHING THE TAX BASE

In establishing the tax base for real property tax purposes, records are kept on about 10 classes of property. Three types of property, however, account for over 94 percent of the total assessed value of real property in the State. These are residential, commercial, and industrial property. Table 1 shows the percentage of total assessed value by property class for the major property classifications.

<u>Table 1</u>		
<u>Type of Property</u>	<u>Assessed Value (Millions of Dollars)</u>	<u>Percentage Of Total</u>
Residential	\$11,958	60.8%
Commercial	4,734	24.1
Industrial	1,747	8.9
Agricultural	778	3.9
Lots	246	1.2
Land, natural resources, and other	213	1.1
Total	\$19,676	100.0%

Source: Survey of State Tax Equalization Board Records, 1970.

Responsibility for maintaining assessment records is delegated by State Law, for the most part, to county government. The responsible governmental unit employs assessors who are responsible for maintaining timely records of the assessed value of each parcel of property in their county. The State laws mandating these local assessment procedures, however, do not spell out in specific terms exactly what valuation procedures should be used, nor do they mandate the same procedures in each county. Thus, for example, some counties assess property at full market value, with a fraction of the assessed value (not allowed to exceed 75 percent) to be used for tax purposes, while other areas assess property at some specified fraction of market value to be used for tax purposes. Because assessment alone is a complex undertaking, the lack of specificity in the State's current legislation contributes to the observed pattern of wide variations in assessment procedures throughout the State.

Another factor contributing to these variations is the fact that no specific professional qualifications are mandated by State law for the position of assessor. In fact, most assessors are subject to the political vicissitudes of life in the jurisdiction which appoints them. This, in turn, must contribute to the difficulty of maintaining fair and uniform tax rolls across the State.

Whatever technique is used, the estimated market and assessed value of each parcel of property in the county are recorded on cards filed in the county office. The total assessed value of all properties in each classification is the

county's total tax base. This base is disaggregated for municipalities in the county and sectioned in a different way for school districts and other special taxing districts.

Property values are not static, however, and therefore, counties must periodically revise their valuations of market and assessed value. Some counties establish a continuous reassessment program covering a certain percentage of the parcels in the county each year. Most counties let market value increases proceed until the overall assessment ratio is significantly different from the mandated ratio. At that time, they order a reassessment of each parcel in the county. General revaluations have typically been requested in 3- to 5-year intervals. This process of general revaluation is extremely costly. Furthermore, the discrepancies in assessed value arising from changes in the real estate market between revaluations are not reconciled in the tax base and significant inequities can result.

In summary, the current system of determining the real property tax base is both confusing and lacking in overall uniformity and consistency. Its complexity contributes to the confusion of individual taxpayers about the workings of the property tax system and leads to inequitable treatment of at least some taxpayers. Property tax reform might well address itself, in part, to an improved assessment process.

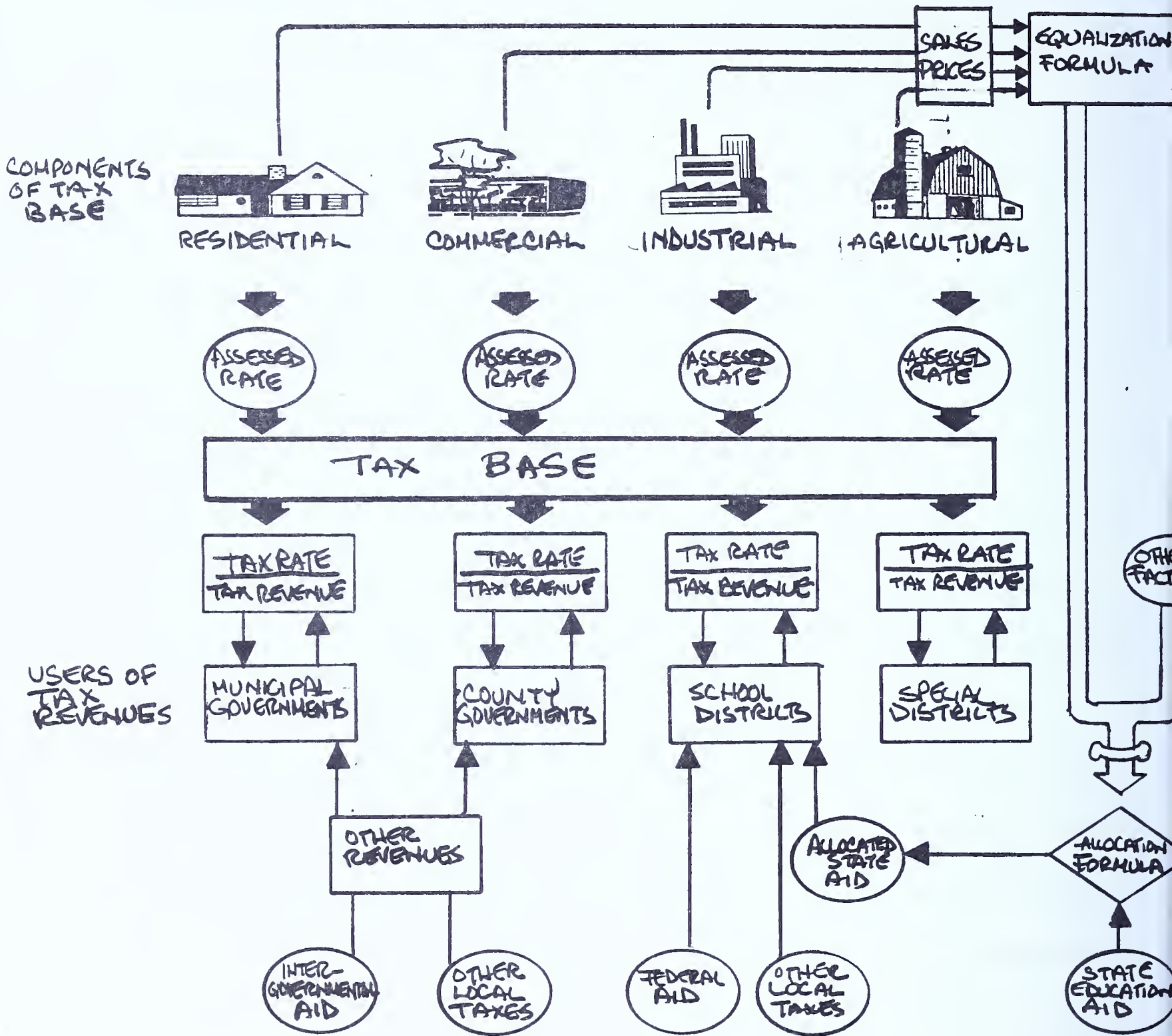
SETTING TAX RATES

Tax rates* are set by local government units specifically endowed by the State with taxing authority. The power to tax is reserved to the State. The State, in turn, authorizes local jurisdictions to undertake certain taxing programs as part of the charter that it grants to counties and various classes of municipalities. The local government will typically draw up its annual budget and first account for all other sources of revenues - especially State and Federal aid. Then, property taxes, which are usually viewed as a residual source of funds, are used to balance the budget. After any budget balancing or reducing measures have been taken, the property tax rate required to finance the balance of the budget is calculated as revenues required divided by the appropriate tax base for the unit of local government - municipality, county, or school district.

This rate-setting process and the basic flow of funds to units of local government is schematized in Exhibit 1, following. For municipal and county governments, property revenue is the major revenue source available to supplement other local taxes and intergovernmental aid. For school districts, however, the property tax base is both a major source of local revenues and a factor influencing

* - Property tax rates are set in terms of mills per dollar of assessed value of the tax base. Because of local variations in the percentage of market value to be used as the assessed value for tax purposes, a comparison of these nominal rates across taxing jurisdictions is often meaningless. Except where otherwise noted, in this report, we will use effective tax rates at all times - i. e., nominal rates set by taxing jurisdictions multiplied by the AV/MV ratio for the jurisdiction.

The current property tax system is very complicated



the allocation of State aid. (Note that property taxes generally constitute the only source of revenue for most special service districts, although some do utilize user charges. Special service districts are not discussed further in this report because of their extremely local character, their generally small size, and the lack of adequate data on their financial characteristics.)

There were over 5,000 local governments empowered to raise revenues through property taxes in 1970. Table 2 shows the distribution of governments by level of government.

Table 2
Governmental Units Levying Property Taxes

<u>Level of Government</u>	<u>Number of Units Of Government</u>	<u>Type of Tax Levied</u>
State	1	Statewide utilities property taxes
County	67	General property taxes
Municipality	2,575	General property taxes
School districts	517	School taxes
Special service* districts	1,900	Special service taxes (e. g. , street lighting)

* - Estimate based on Census of Government, 1967.

Source: Department of Community Affairs

State law mandates limits to property tax rates for each unit of government. However, because of the variations in the tax bases - i. e. , the percentage of market value of property to be subject to the tax rate - these statutory limits

are virtually meaningless - stated as a tax on assessed rather than full value.* Because controls over future rate increases may be a significant issue warranting tax reform attention (see Chapter 4), tax reform built around a uniform full market value concept may be desirable in Pennsylvania.

All higher taxing jurisdictions overlap lower jurisdictions. Thus, the total tax that an individual taxpayer pays is the sum of the tax rates of the jurisdictions within which his property is located, times the property's assessed value. A taxpayer pays at least three property taxes: county, school district, and municipality. In general, municipalities are the basic building block for school district and county taxes. Municipalities in Pennsylvania may be first-, second-, or third-class cities, boroughs, or first- or second-class townships. (Distinctions between the class of municipalities are based primarily on population.) Each municipality is located within a single county. Some municipalities are divided between two or more school districts, however, and over one-third of the school districts overlap county lines.

Significant local variations in the property taxes paid by individuals result from these independent and overlapping taxing jurisdictions. Thus, although all residents of a given county pay the same county taxes, residents of other counties will pay taxes at a different rate. And although all the residents of a school district may pay the same school district taxes, they will pay different municipal taxes and they may pay different county taxes. The effect of these local variations is evaluated in the following sections of this report.

* - Some states (e.g., New York) have statutory limits on rates in terms of full "equalized" value in order to eliminate some of the discrepancies resulting from variations in local assessment procedures. However, Pennsylvania only uses equalized data for State aid purposes.

* * *

In summary, far from being a simple tax, the property tax (that is, the real property tax system - the combination of a multiplicity of local real property taxes) is extremely complicated. Some of the complications are inherent in the nature of the tax - e.g., the process of establishing records on the tax base which is complicated by the need for valuation procedures. Some of the complexities result from the structure of local government in Pennsylvania - e.g., the fact that school district boundaries overlap county lines. All of these complications taken together have tended to confuse the public debate on property tax reform.

In addition, the highly localized nature of Pennsylvania's property tax system leads to many inequities. Because of the number of local government units levying property taxes, relative tax burdens vary widely across the State (and even within individual counties and municipalities). Assessment procedures and their effectiveness vary widely - resulting in differing treatment of individual taxpayers even within highly localized areas. A major thrust of property tax reform should include some means of eliminating the inequities which result from the current system.

APPENDIXES

CHAPTER 2

CHAPTER 3

CHAPTER 4

CHAPTER 5

2 - THE ROLE OF PROPERTY TAXES IN

FUNDING LOCAL GOVERNMENT

Despite its problems, the property tax is still the mainstay of local government finances in Pennsylvania (and elsewhere). However, the costs of providing local government services have been increasing rapidly, and the growth in the property tax base has not kept pace. To meet their revenue needs, local governments have continually increased their property tax rates - to the point where strong evidence of taxpayer revolt has become apparent.

Further, despite the increases in rates, property taxes have been declining in relative importance as a source of funds for local governments, and these governments have been forced to find other sources of revenue. Even a cursory review of property tax revenue trends indicates that the tax has been virtually exhausted as a viable source of additional revenues for local governments. This fact underscores the urgency of a comprehensive reform of local government finances. A key component of such reform is the public recognition of the limitations of real property taxes as a source of funds for local governments.

This chapter profiles the current role of property taxes in funding:

- ¶ School districts - where property taxes provided \$708 million in revenue in 1969 (36 percent of total school district revenues)
- ¶ Municipalities - where property taxes provided \$325 million in revenue in 1969 (28 percent of total revenues)
- ¶ Counties - where property taxes provided \$197 million in revenue in 1969 (59 percent of total revenues).

SCHOOL DISTRICTS

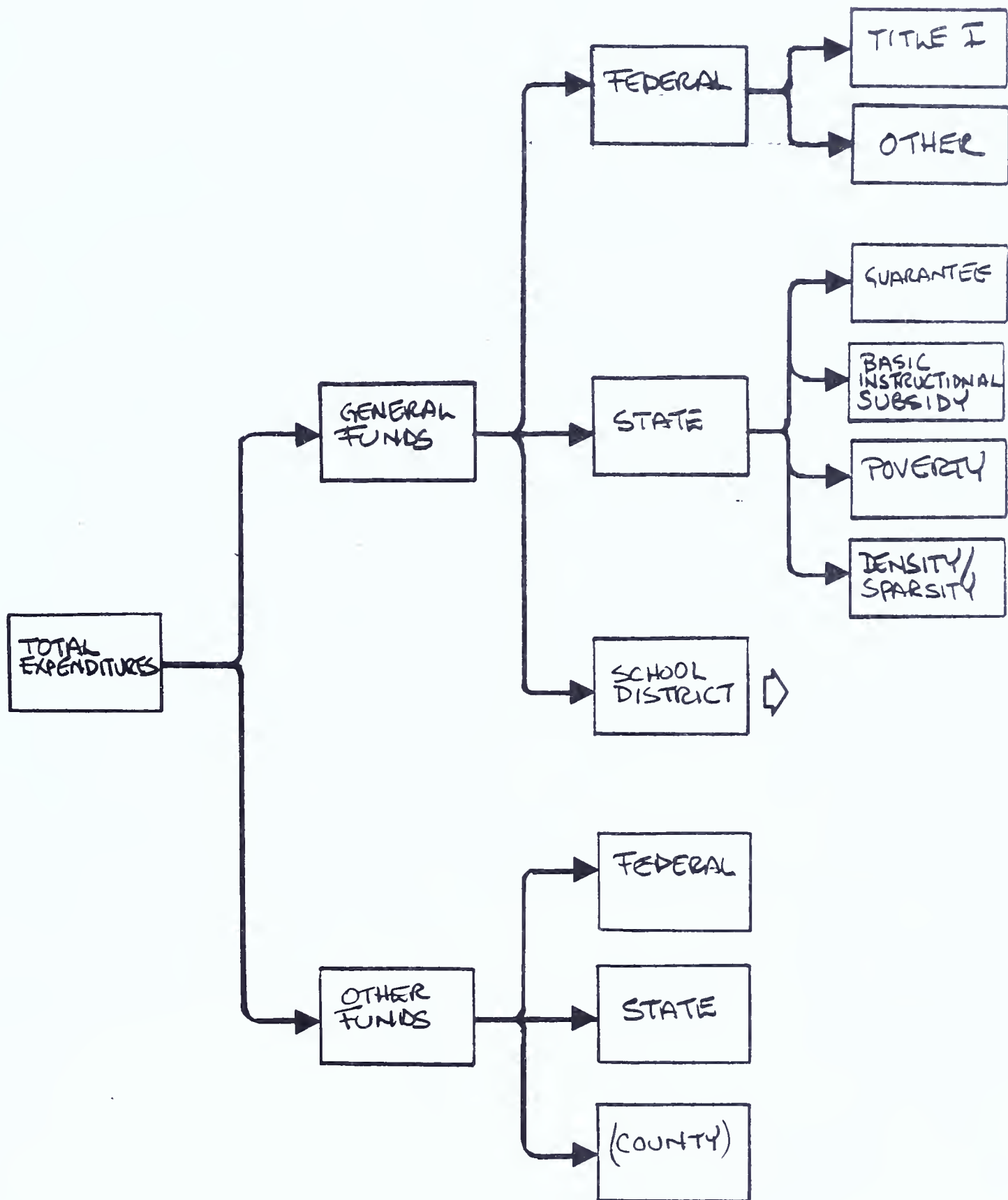
Property taxes contribute over 75 percent of locally raised revenues for school district budgets but only about 36 percent of revenues from all sources. In addition, both the property tax contribution as a share of local revenues and local funds as a portion of the total school revenues have been declining as a result of a number of new local taxes and the growth of Federal and State aid.

School funding is derived from many different sources (see Exhibit 2 following). Basically, budgets are built around two kinds of funds: "general" and "other." General funds are available to support the whole range of school programs; other funds are restricted to such uses as supplementary education and driver training. The general funds are, clearly, the most important source of funds for school districts: For the past 5 years they have accounted for over 77 percent of total school district revenues.

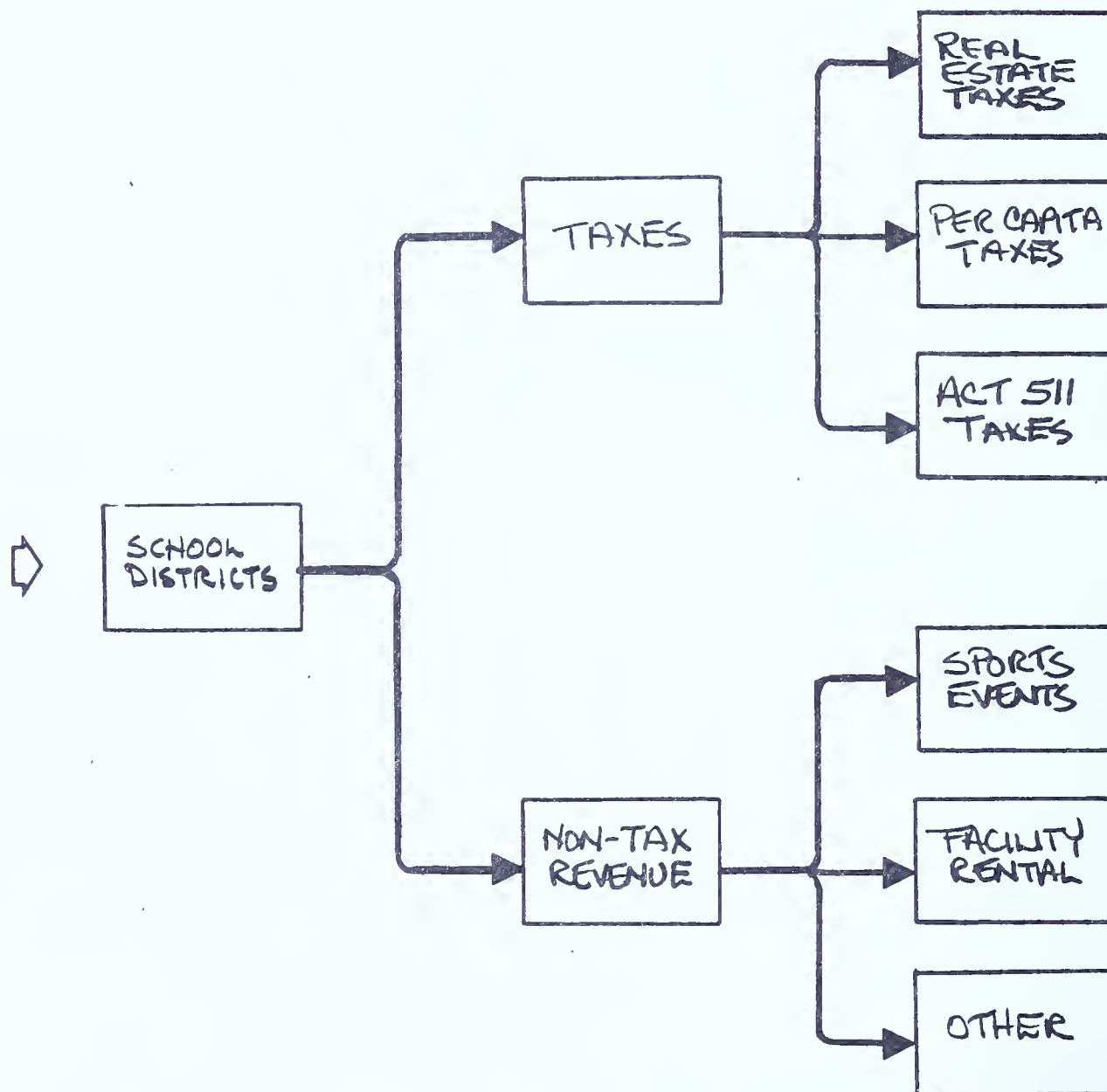
Other funds now come primarily from the Federal and State governments. (County contributions to the other funds account have been phased out.) General funds are supplied by the Federal Government, the State Government and the local school districts themselves.

Federal funds in Pennsylvania are provided primarily through Title I of the Elementary and Secondary Education Act, although some other titles of that Act and other Federal legislation are also revenue sources. State assistance is primarily of four types: (1) guarantee, (2) basic instructional subsidy, (3) poverty grants, and (4) density/sparsity grants. Local school districts raise funds through a variety of tax and nontax means (see Exhibit 3 following).

School funding is derived from many sources



Local school district revenues may be both tax and non-tax-related



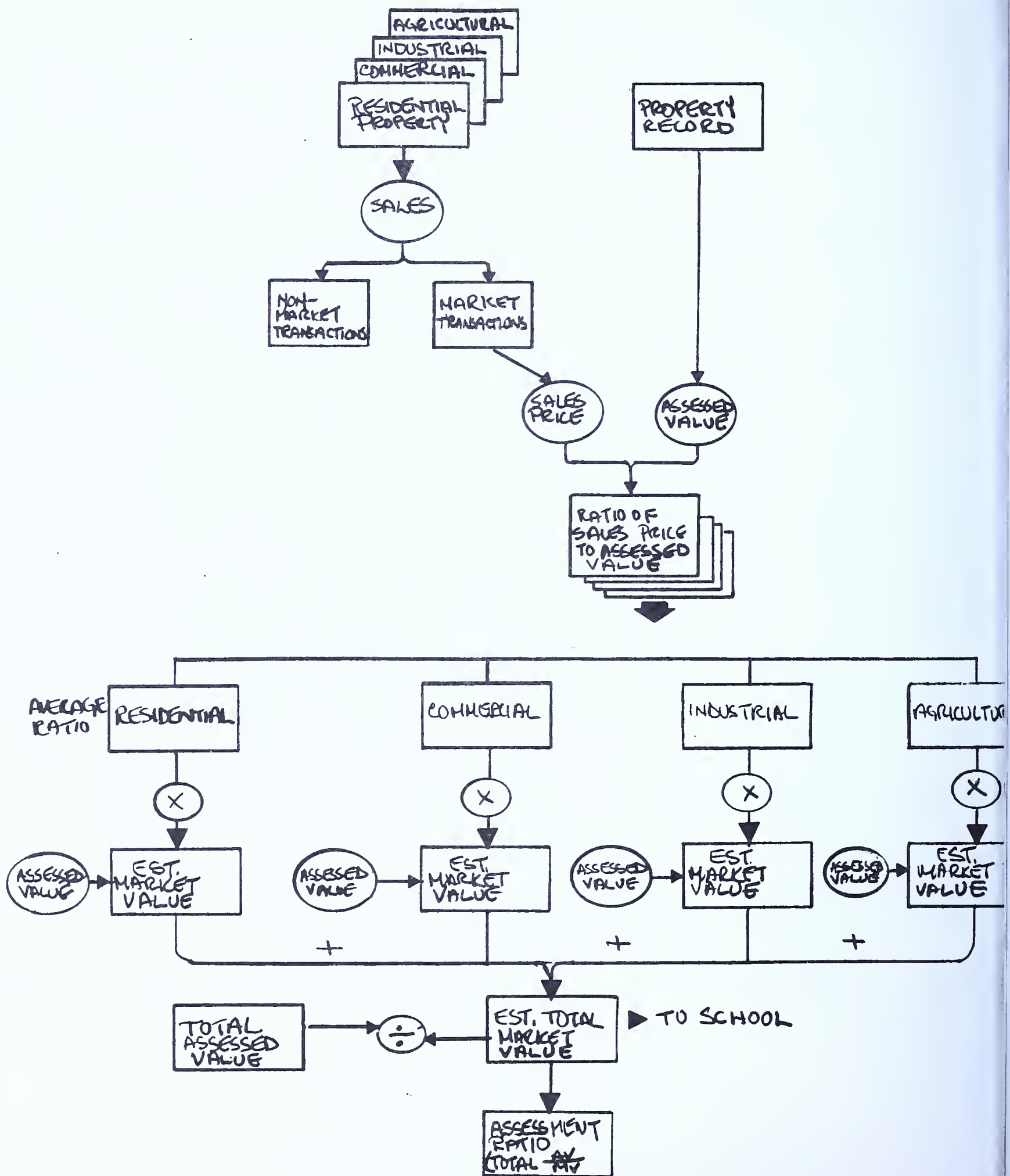
The property tax plays a central role in two of the major sources of school district revenues: State aid and directly raised local tax revenue. Both of these are discussed below.

State Aid

Various formulas are used to determine the amount of assistance that a school district would receive under each of the State's assistance program (refer to Exhibit 2). In particular, the allocation of the basic instructional subsidy allows for the variations in market values of property in each school district. Because the market value of taxable real property varies widely across the State, State aid formulas have tried to assist local governments based on need, as measured by a low tax base relative to other localities rather than make up for a lack of local effort. Therefore, the use of data on local property taxes is an integral part of the procedure for allocating State aid for education.

To establish an equitable basis for comparing fiscal effort in different localities, the State, through the State Tax Equalization Board (STEB), translates county data on the assessed value of real property into estimates of the market value of property in the State. The process of equalization - which involves surveys of actual sales transactions - is itself complicated (although its purpose is to eliminate some of the variations resulting from county assessment procedures and policies). Exhibit 4, following, summarizes the flow of STEB's analysis.

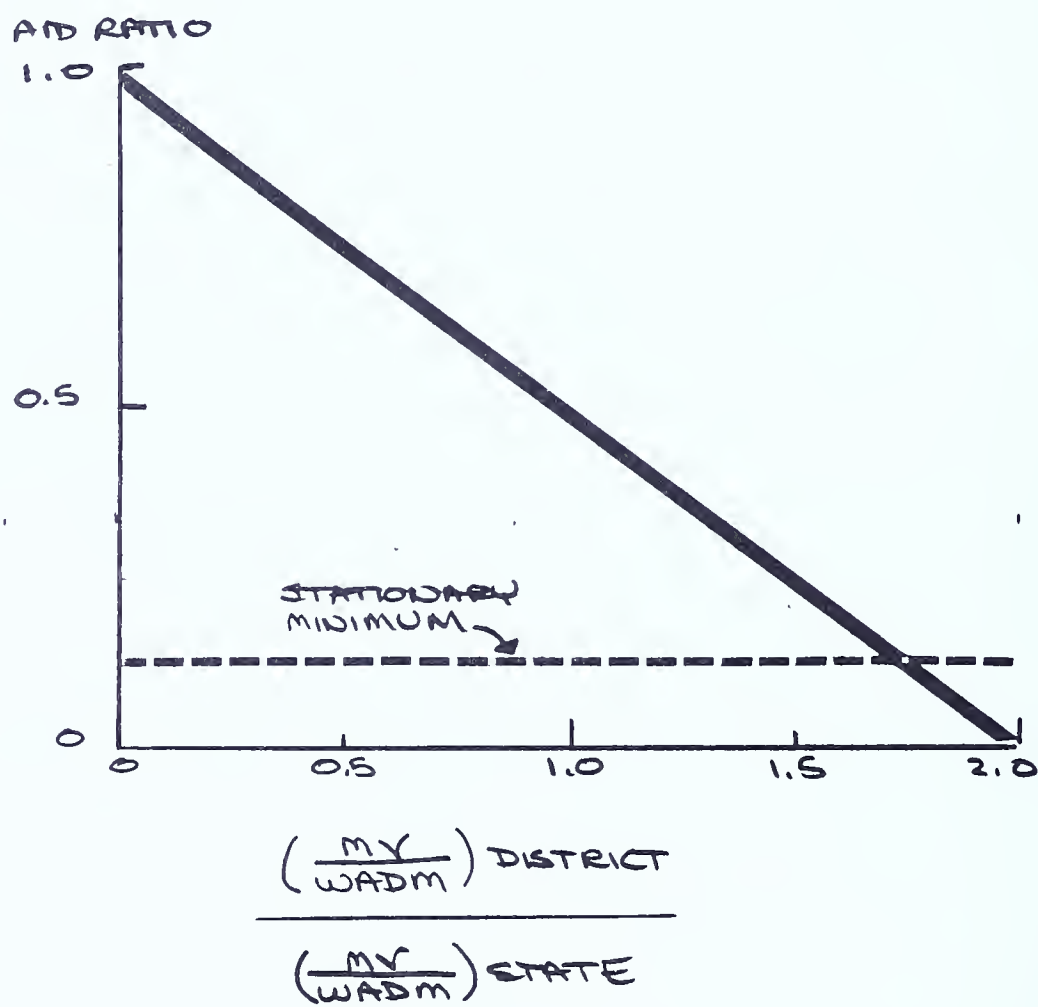
SCHEMATIC OF EQUALIZATION PROCEDURES



The process of determining the total market value of property for each school district is as follows: STEB receives data from the county offices on the sales price, assessed value, type of property, and type of transaction for every parcel that changes hands in that county. These reports are received monthly. Transactions that are not "arms' length" market transactions (such as foreclosure sales or tax sales) are excluded, and the assessed value to sales price ratio is calculated for each of the remaining transactions. This process is required for each class of property.

From the data on actual sales transactions, STEB estimates an assessment ratio - the actual ratio of assessed value to market value - for each class of property in each school district. These data on assessment ratio are combined with county records on the total assessed value of property by property class to estimate the total market value of property in each property class. (Counties are required to maintain current records on total assessed value. Some counties provide change records, indicating only the year-to-year change by component; others require review of their basic records on each parcel.) The total market values by each class of property are summed to give an estimate of the total market value of all property in the jurisdiction. Then, total assessed value is divided by total market value to give the overall assessment ratio for the jurisdiction. The STEB annually reports these three figures: total market value, total assessed value, and assessment ratio by school district.

The State's basic instructional subsidy declines with increasing school district property-wealth



Using the data prepared by STEB, the basic instructional subsidy is calculated as the weighted average daily membership (WADM) of the school district times the expenditure per WADM times the aid ratio. WADM is prepared from attendance data and reflects the composition of the pupils in terms of kindergarten, elementary, or secondary school. Expenditures per WADM are derived from budgets that the school districts draw up and from the expenditures that they report to the State Department of Education. The aid ratio is based on market values of property in the school district per WADM compared to the Statewide average. Subsidy provided under this formula is subject to certain maximums and minimums.

The aid ratio is defined as:

$$1 - \left(\frac{MV}{WADM} \right)_{\text{district}} \bigg/ \left(\frac{MV}{WADM} \right)_{\text{State}} \times .5$$

The implication of this ratio is that the State's basic instructional subsidy declines with increasing school district property wealth (see Exhibit 5). For example, if the school district had a market value per WADM equal to the Statewide average, then the aid ratio would be 50 percent. If the market value per WADM of the district were two times or more the State average, the State would provide no assistance under this formula. (In fact, the legislated minimum aid ratio by legislation, subject to an overall maximum aid limit in dollars per WADM, is 10 percent.) The purpose of this ratio is to reduce the dependence of expenditures per student on the property wealth of the school district.

Exhibit 6

Federal aid to school districts has grown more than twice as fast as other revenue sources

AVERAGE ANNUAL INCREASES IN REVENUES

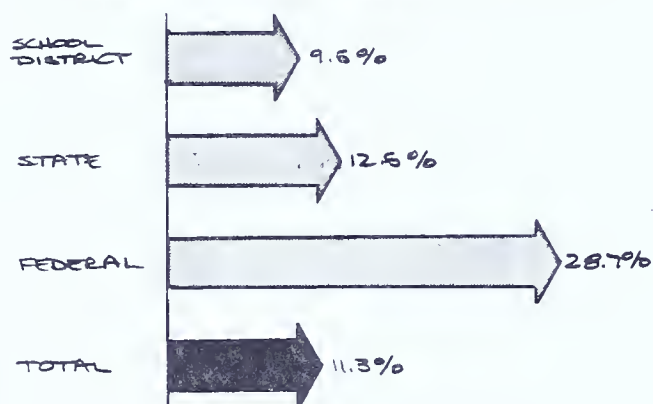


Exhibit 7

The locally financed share of school district budgets has declined persistently

SCHOOL DISTRICT REVENUE AS A PERCENT OF SCHOOL BUDGET

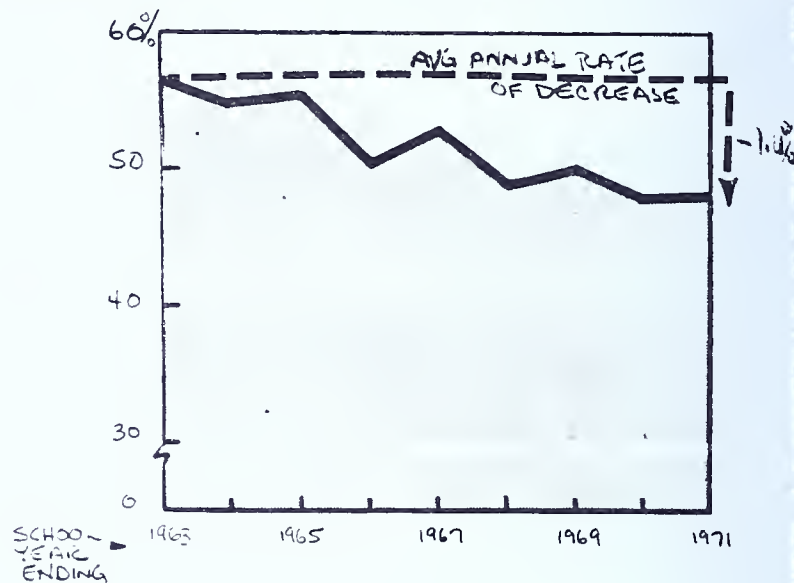


Exhibit 8

Nontax revenues have varied between 1.5 and 7.0 percent of local revenues

NON-TAX REVENUES AS A PERCENT OF LOCAL REVENUES

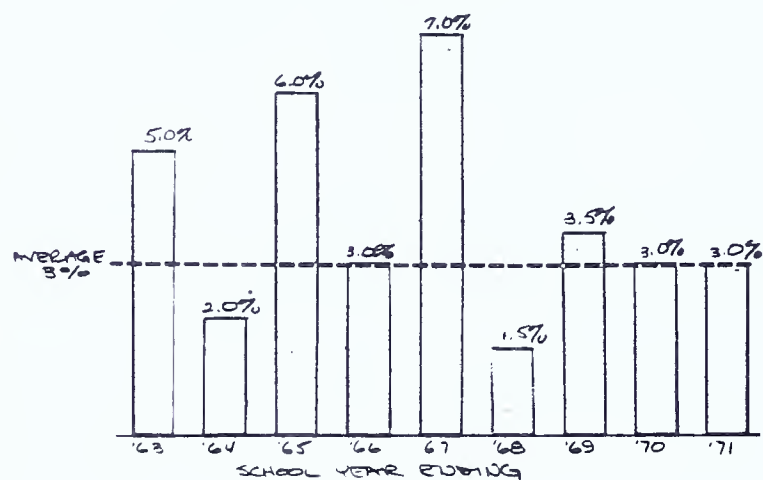
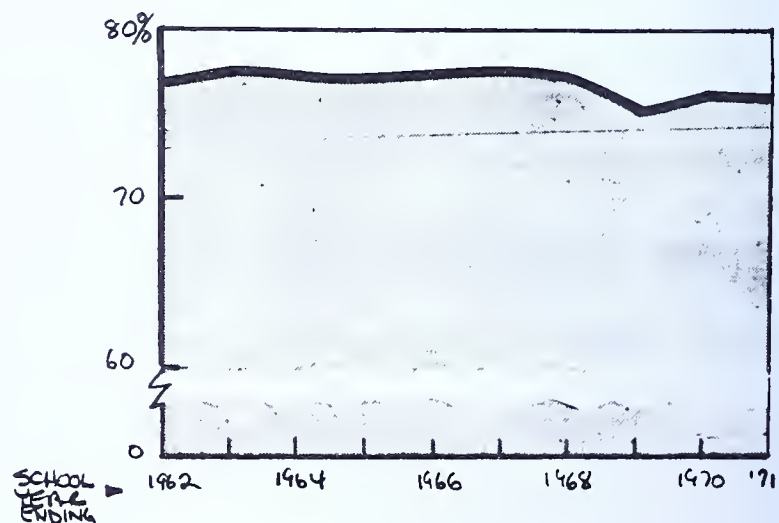


Exhibit 9

Property tax revenues have contributed about 77 percent of local school district revenues

PROPERTY TAXES AS A PERCENT OF LOCAL TAXES



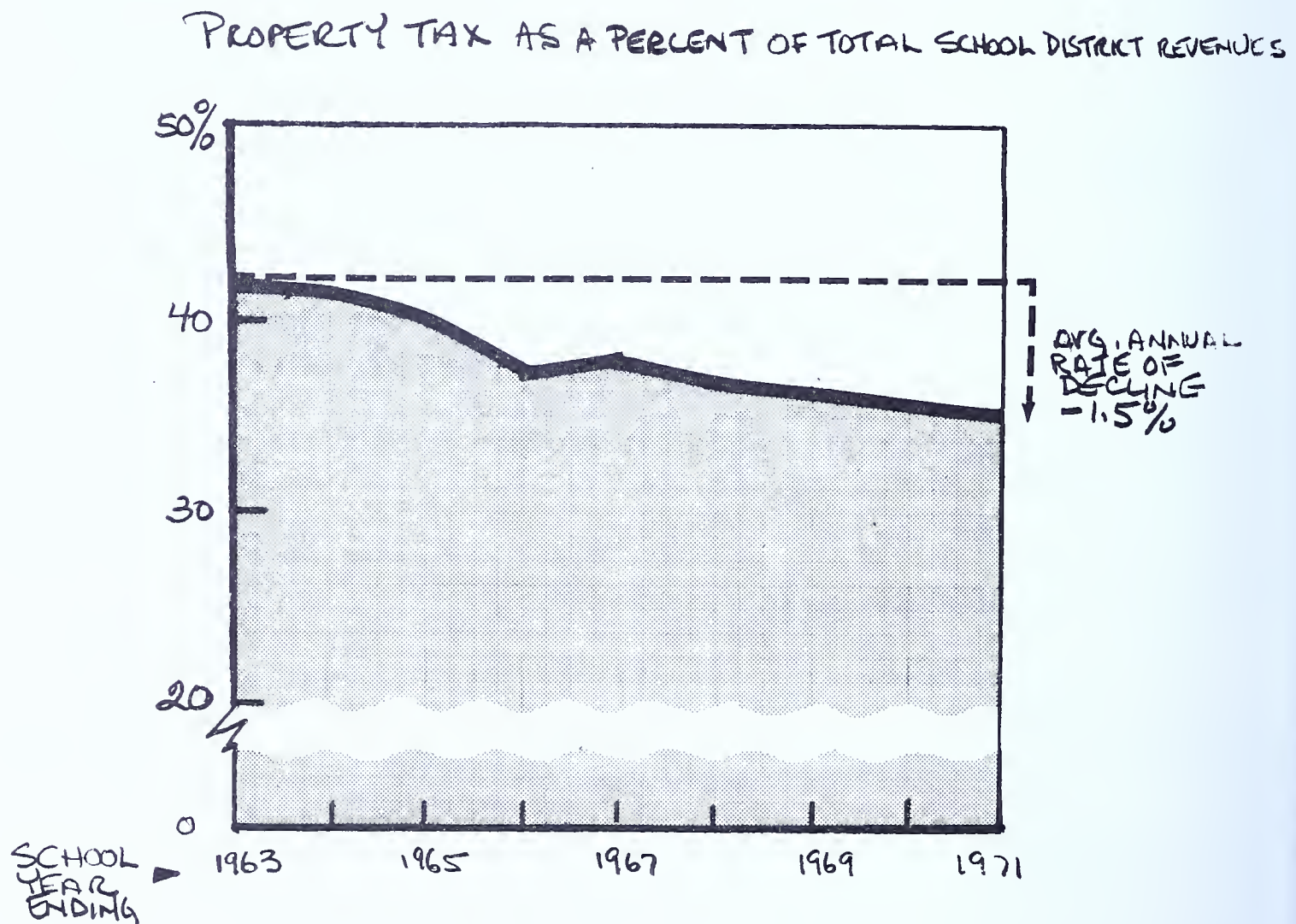
School District Property Taxes

In addition to the basic instructional subsidy from the State, property taxes play a direct role in financing school district expenditures through their role as a local source of revenue. Local school district revenue sources may be both tax- and non-tax-related, as was shown on Exhibit 3. Nontax sources are user charges and facility rentals that the district may realize and typically are a small portion of the overall budget. Tax sources may be per capita taxes, Act 511 taxes, or property taxes.

Although revenue from each source has grown consistently, local revenues have grown most slowly. Exhibit 6 shows that Federal aid to school districts has increased more than twice as fast as other revenue sources: Specifically, at almost 29.0 percent per year, compared to the next fastest growing component, State aid (12.5 percent per year). Direct school district revenues, in contrast, have grown at only 9.5 percent annually. Overall, revenues from all sources have grown at about 11.0 percent annually.

As a result of this slow growth in school district revenues, local revenues have constituted a declining share of total expenditures. Exhibit 7 shows that while the trend has not been consistent (monotonic), it has persisted at an average annual rate of about 1 percent. Breaking local revenues into their components shows that the nontax portion has varied between 1.5 and 7.0 percent of all local revenues (see Exhibit 8), while property tax revenues have contributed about 77.0 percent of direct school district revenues (see Exhibit 9). Since the advent

As a result, property taxes, as a share of total revenues, declined



of Act 511 taxes, the property tax share of local revenues has declined somewhat but not significantly.

The relatively constant share of local revenues provided by the property tax combined with the declining share of local revenues in total school district revenues has resulted in a declining property tax contribution to the overall school district budget. The property tax share has declined from 41.8 percent of the district budget in 1963 to its 1971 contribution of 35.6 percent. Over this 9-year period, the average annual rate of decline in budget share has been about 1.5 percent (see Exhibit 10).

Even though the property tax share of the budget has declined, however, budgets have been increasing and property tax rates have had to climb to yield the required funds. Table 3 shows the effective property tax rates in the school years beginning in the year indicated. The average annual increase in rates has been 5.3 percent over this period.

Table 3

<u>School Year Beginning</u>	<u>Effective Property Tax Rate (Per Dollar of Market Value)</u>
1961	11.30 mills
1962	11.97
1963	12.43
1964	13.19
1965	15.01
1966	15.11
1967	16.38
1968	17.67
1969	18.18

Source: Department of Education, State Tax Equalization Board.

The increasing tax rates were required to make up for the slow rate of growth of the tax base. If property taxes were the same share of district budgets today as they were in 1963 (namely, 41.8 percent), the property tax rate would have been 21.36 mills in 1971, 17.0 percent higher than its current rate. Today's lower property tax rate has been won by reducing property tax share of the budget that has, in turn, required a proliferation of local taxes under Act 511.

MUNICIPALITIES

Property taxes have played much the same role in municipal finances that they played in school district budgets. Total municipal revenues have been climbing at about 13.00 percent annually. Municipal taxes, however, have been growing at about 7.70 percent and the property tax component of municipal taxes has been growing at about 5.19 percent annually. As a result of these trends, municipal taxes have been a declining share of total municipal revenues, and property taxes have been a declining share of municipal taxes. Table 4 shows these trends over the decade of the 1960s.

Table 4

(1) Year	(2) Municipal Taxes As a Percentage of Municipal Revenues	(3) Property Taxes as A Percentage of Municipal Tax Revenue	(4) Property Taxes as a Percentage of Total Municipal Revenue
1961	63.44%	60.32%	38.27%
1962	62.25	60.32	37.12
1963	59.63	59.37	35.40
1964	62.12	58.24	36.18
1965	62.85	56.85	35.73
1966	62.04	53.49	33.19
1967	62.87	52.26	32.86
1968	62.19	50.81	31.60
1969	61.07	45.42	27.74

As Column 4 illustrates, property taxes have declined significantly as a percentage of total municipal revenues. The average annual rate of decline in share has been 3.45 percent. Over this 10-year period, the total decline was almost 30 percent - a total of 11 percentage points.

Nevertheless, municipal property taxes have shown a tendency to increase. Even though the property tax share has declined, the overall budget has been growing rapidly enough to generate an increasing demand for property tax funds. Thus, with the demand for funds growing at 5.19 percent and the base growing at 2.95 percent annually, rates had to rise to meet the demand. Table 5 shows the municipal tax rates over the 1961 to 1969 period, as calculated from the Department of Community Affairs and STEB data.

Table 5

<u>Year</u>	<u>Municipal Tax Rates (Mills Per Dollar Of Market Value)</u>
1961	6.83
1962	6.82
1963	6.83
1964	6.85
1965	6.84
1966	7.04
1967	7.10
1968	---- (NA)
1969	7.34

Source: Department of Community Affairs; STEB.

Based on these figures, the average annual rate of increase in municipal property tax rates has been 1.69 percent. But if the property tax share of the municipal budget had not declined in the significant amount that it did and these taxes still contributed 38.27 percent of the total budget as in 1961, then the tax rate in 1969 would have been 12.49 mills per dollar of market value, an increase of 66.00 percent over the rate at that time. The relative stability of municipal property tax rates, therefore, has been won by increasing reliance on aid and debt (as indicated in a declining role for municipal taxes in the overall budget) and by the proliferation of other taxes and increased prices for municipal services (as indicated by a declining role for property taxes in the total municipal tax account).

COUNTIES

County governments are a modest exception to the pattern set by school districts and municipalities, for in the case of counties, property tax revenues are growing faster than total tax revenues. However, total county revenues from all sources climbed at an annual rate of 13.5 percent over the decade of the 1960s and since total tax revenues rose at only 11.3 percent, taxes declined as a percentage of total revenues. Property tax revenues increased at about 11.8 percent annually, however, thus increasing the property tax share of total county tax revenues. Nevertheless, property taxes did decline slightly as a percentage of total revenues, due primarily to the rapid decline in taxes per se as a revenue source. These trends are tabulated in Table 6 following.

Table 6

<u>Year</u>	<u>County Taxes As a Percentage of County Revenues</u>	<u>Property Taxes As a Percentage of County Tax Revenue</u>	<u>Property Taxes as a Percentage of Total County Revenues</u>
1961	75.01%	81.51%	61.14%
1962	74.11	85.48	63.35
1963	73.17	86.41	63.23
1964	79.76	86.14	60.09
1965	69.65	86.34	60.14
1966	69.43	87.70	60.89
1967	67.13	89.09	59.81
1968	66.67	88.73	59.16
1969	66.34	88.35	58.61

Source: Department of Community Affairs.

To support this increase in share of total tax revenues, property taxes had to increase. Because the increase in property tax revenues had been about 11.08 percent and the increase in the base had averaged about 2.95 percent, tax rates had to climb at almost 7.50 percent annually. Table 7 shows the pattern of increase in county property tax rates.

Table 7

<u>Year</u>	<u>County Tax Rates (Mills Per Dollar Of Market Value)</u>
1961	2.13 mills
1962	3.08
1963	3.04
1964	3.09
1965	3.26
1966	3.52
1967	3.65
1968	3.93
1969	4.42

Source: Department of Community Affairs, State Tax Equalization Board.

A major contributor to this growing demand for funds at the county level is an expanding county welfare budget. Over the last 5 years of the 1960s, welfare costs were up an average of 14 percent annually. As a result, welfare increased its share of an expanded county budget, moving from 22 percent in 1962 to 26 percent in 1969.

* * *

In summary, property taxes have traditionally played a major role in funding local government services. Pressure for increases in local government expenditures has been so great in recent years that, despite continual and significant increases in property tax rates, the property tax share of total local expenditures has declined steadily. Additional revenues to make up the gap have been derived from either increased State aid or a proliferation of other local taxes. A continuation of these trends would raise significant doubts about the long-term fiscal viability of the property tax as a key source of local government revenues. Any reform of Pennsylvania's property tax system must recognize this inherent limitation in property taxes as a source of revenues - if the reform is to have any hope of succeeding over a longer term.

APPENDIXES

CHAPTER 3

CHAPTER 4

CHAPTER 5

3 - PROBLEMS IN SCHOOL FINANCING

THROUGH LOCAL PROPERTY TAXES

The future of real property taxes as a primary means of financing education was recently cast into doubt by a series of far-reaching court decisions. The first of the school financing court cases was resolved by the California Supreme Court in the case of Serrano versus Priest in 1971. The court held that:

- ¶ Expenditures for education must not be dependent on local wealth in the form of taxable property.
- ¶ States must establish fiscal neutrality in the funding of education programs.

Similar rulings were subsequently handed down in three other states:

- ¶ Texas: Local wealth cannot be the basis of school financing because "poorer districts tax more, spend less."
- ¶ Minnesota: Pupils have a right "to have level of spending for education unaffected by variations in taxable wealth of their school districts."
- ¶ New Jersey: Neither local wealth nor willingness of citizens to tax themselves are appropriate. Funds must come from "state revenues raised by devices imposed uniformly."

Local property taxes in Pennsylvania now contribute less than 36 percent of the total elementary and secondary school budgets in the State - the balance coming from other local taxes, State aid allocated on the basis of local need, and Federal aid provided through the Elementary and Secondary Education Act.

Nevertheless, Serrano-type problems clearly characterize the use of property taxes in the State. If the Supreme Court of the United States upholds the Texas decision, wholesale changes will be required in Pennsylvania's approach to funding local school costs.

The root of the problem in using local property taxes to finance education is that the property tax base in the State is very significantly concentrated. Three of the State's 67 counties have about 38 percent of total market value of real property in the State. In terms of average market value per pupil, the highest county is 430 percent of the lowest.

Tax rate variations are also important in verifying the lack of "fiscal neutrality" inherent in the present system. Property tax rates levied by school districts vary widely - either in terms of nominal rates applied to assessed value or effective rates based on equalized market value.

The pattern of rate and base variations is clearly tied to the wealth of the local district and its social and economic character. High-tax-base counties with low service needs tax less than poorer counties with higher service requirements. The lack of fiscal neutrality in these patterns, leading to very significant differences in fiscal effort necessary to finance local schools, suggests that fundamental changes may have to be made in traditional approaches to financing education in Pennsylvania.

TAX BASE CONCENTRATIONS

The State Tax Equalization Board (STEB) publishes information on the tax base and assessment ratio for school districts. STEB also aggregates the school district data into "counties," recognizing that some school districts overlap county boundaries. The variations in property concentration can be studied in terms of this aggregate county data. In addition, the Department of Education publishes data on the weighted average daily membership (WADM) of each school district and "county." With these data, it is possible to analyze the distribution of property values per pupil across counties.

Ranking counties by total market value of their property shows that the top 20 percent of counties have about 68 percent of the total market value in the State, while the lowest 20 percent have less than 1 percent of Statewide market value. Exhibit 11, following, shows the concentration of property by quintiles.

In fact, property values are much more concentrated than even this chart would suggest. Three counties - Allegheny, Philadelphia, and Montgomery - account for 38 percent of the State's property wealth. Table 8 on page 3 - 4 lists counties and percentage of total property value in the State for the top 13 counties.

Twenty percent of the counties account for 68 percent of total market value of property

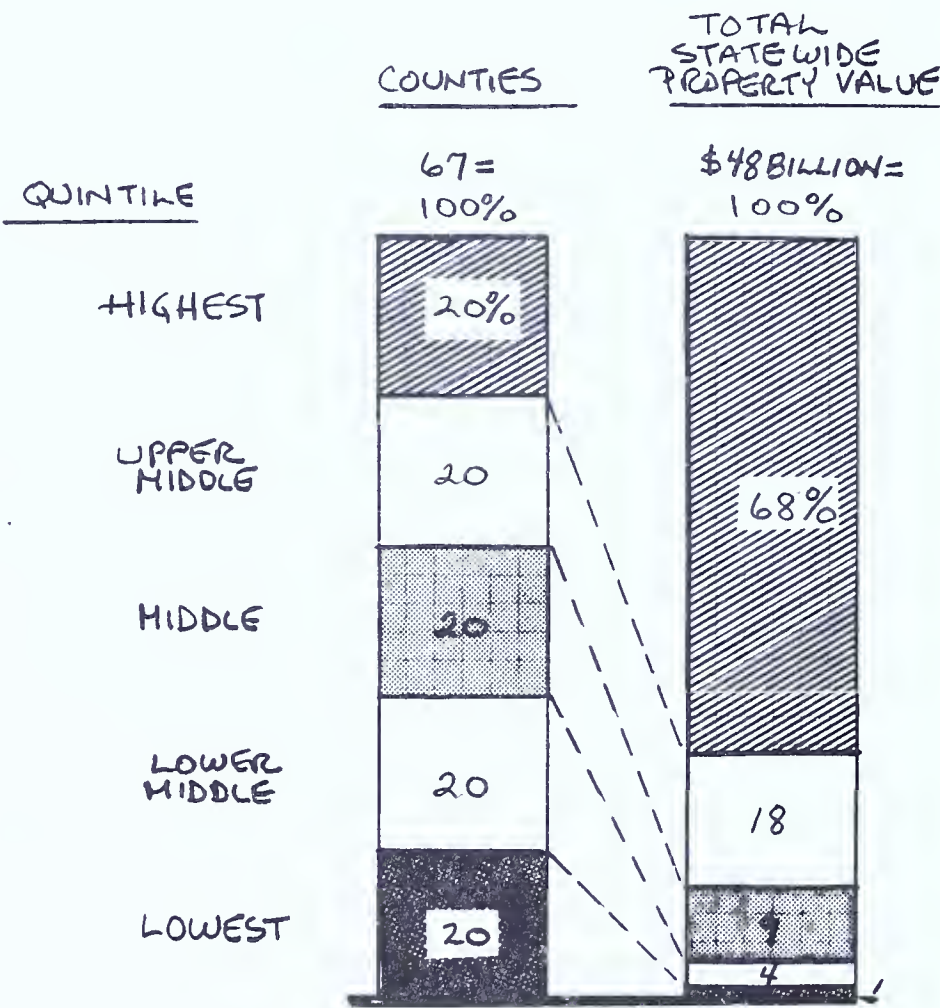


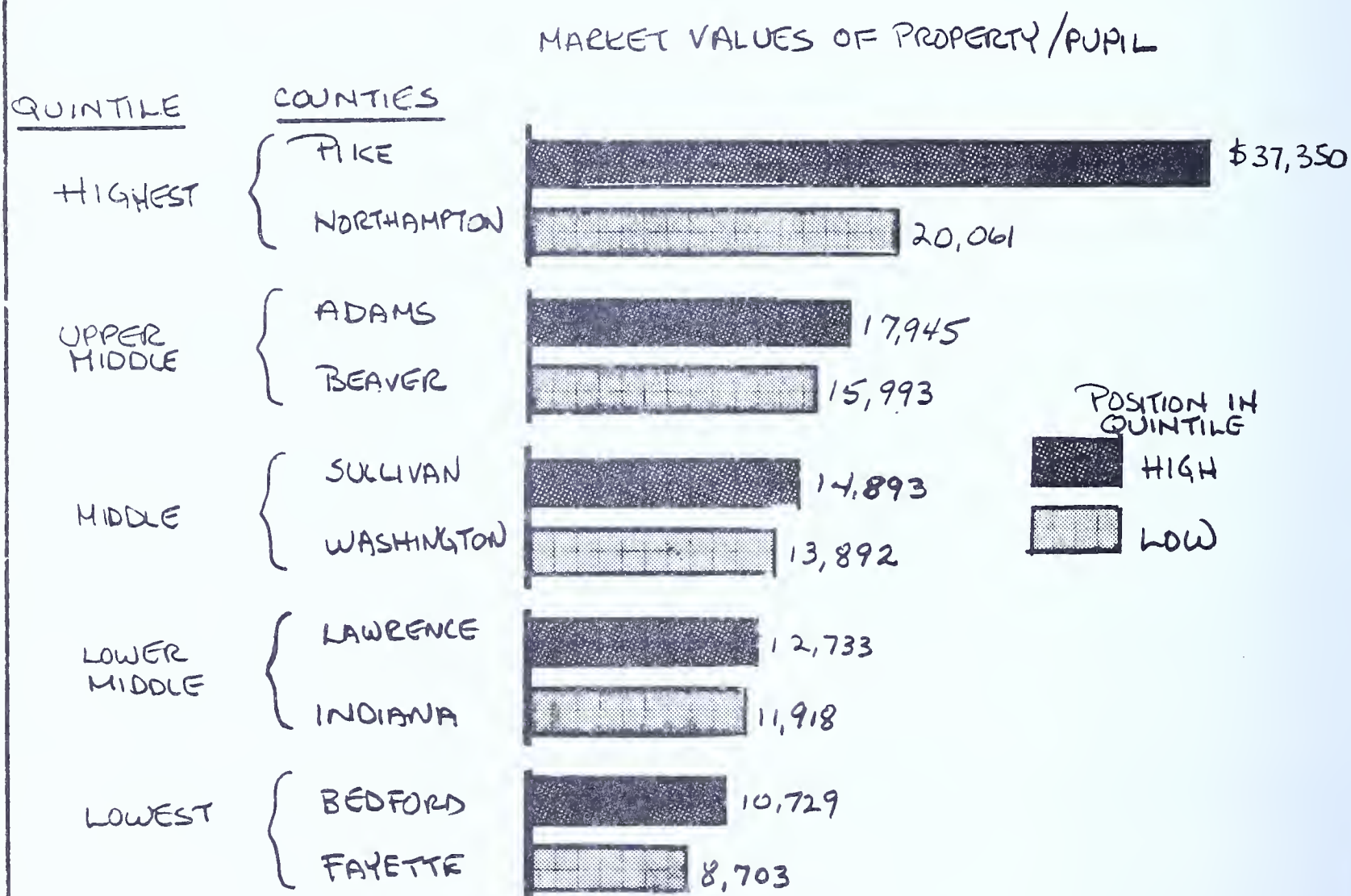
Table 8

<u>Rank</u>	<u>County</u>	<u>Percentage of Property Value</u>
1	Allegheny	16.3%
2	Philadelphia	14.5
3	Montgomery	8.5
4	Delaware	5.4
5	Bucks	4.1
6	Chester	3.0
7	Berks	2.7
8	Lancaster	2.4
9	York	2.3
10	Erie	2.3
11	Northampton	2.2
12	Lehigh	2.2
13	Luzerne	2.0
Total		68.0%

Source: State Tax Equalization Board.

Interpreting these base figures in terms of property value per school child (measured by weighted average daily attendance - WADM) shows a similar concentration of property values in a few counties. As Exhibit 12, following, shows, the overall range in market value of property per WADM is from \$8,703 to \$37,350, or over 430 percent from lowest to highest. The range of the middle 60 percent was somewhat narrower, from \$11,928 to \$17,945 or 151 percent. The lowest 20 percent ranged from \$8,703 per pupil to about \$11,000 per pupil.

Market value per pupil* ranges from \$8,700 to \$37,000



*COMPUTED IN TERMS OF WADH/COUNTY

The top 20 percent, however, reflecting the concentration of property among the top few counties, ranged from \$20, 061 per pupil to \$37, 350.

VARIATIONS IN TAX RATES

The nominal tax rates for education range from 21 mills per dollar of assessed value to over 108 mills. Part of the variation in rates is due to variations in assessment ratios - because a county can levy a high rate but offset that to some extent with a low assessed value to market-value ratio. But even taking variations in assessment ratios into account and converting nominal tax rates to effective tax rates, the highest average county education effective tax rates are still 304 percent of the effective rate in the lowest county.

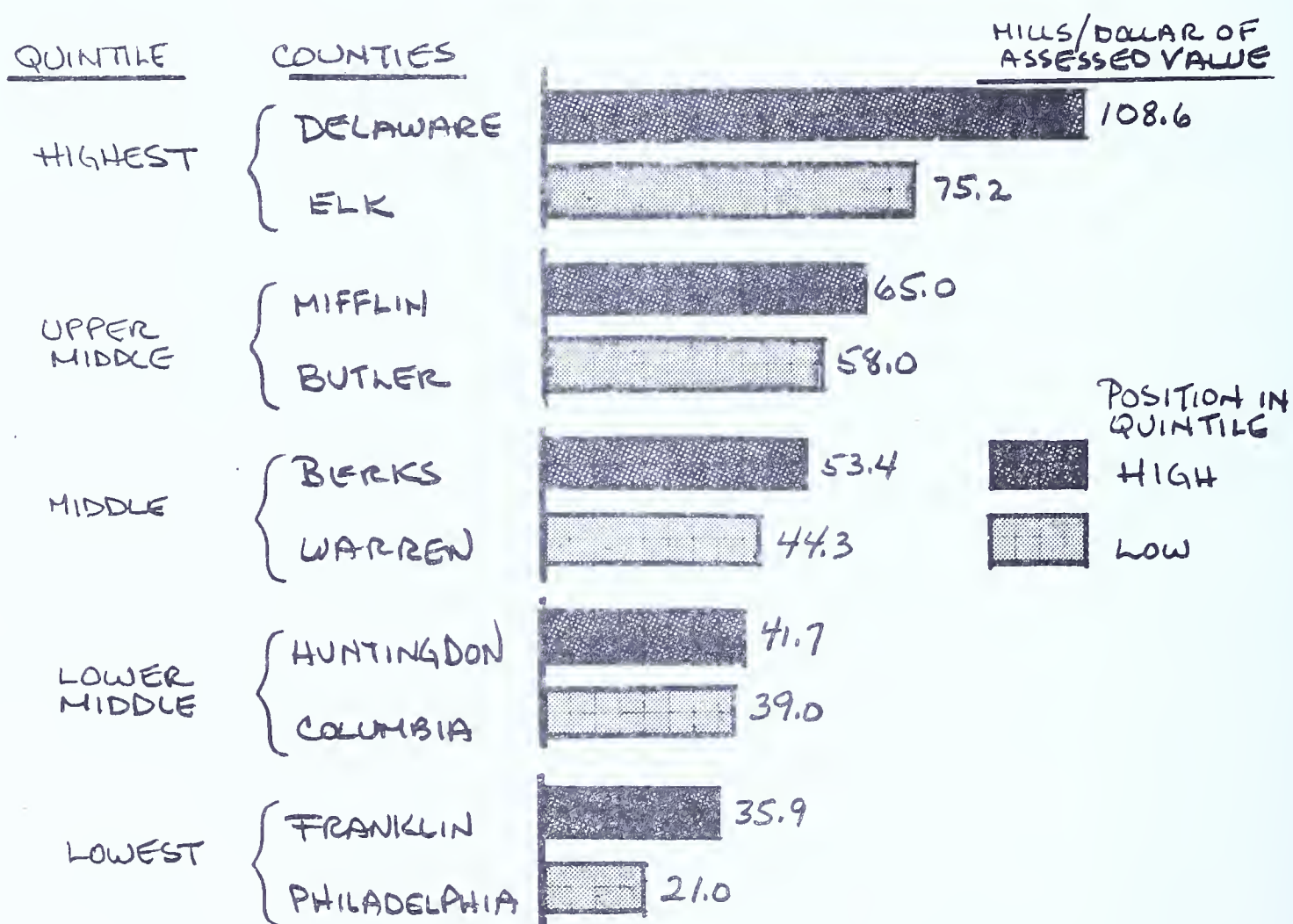
Variations Among Counties*

The range in nominal rates is from 21 mills per dollar of assessed value to over 108 mills, as Exhibit 13, following, shows. The 10 counties shown in the exhibit are taken, two each, from the quintiles of the ranking of counties by average education tax rate, with Philadelphia County having the lowest nominal rate and Delaware County the highest. Thus, this exhibit shows that the middle

* - For education purposes, only school districts set tax rates, not counties. The nominal rate for each school district is available from the Bureau of Commerce and Industry. These rates can be aggregated into counties, consistent with the definition of counties in the introduction to this report, by weighting them by the property value of each school district in the county. Effective rates, then, are simply the nominal rates times the assessment ratio for the county.

Nominal property tax rates range from 21 to 109 mills

WEIGHTED AVERAGE PROPERTY TAX RATES
FOR SCHOOL DISTRICTS



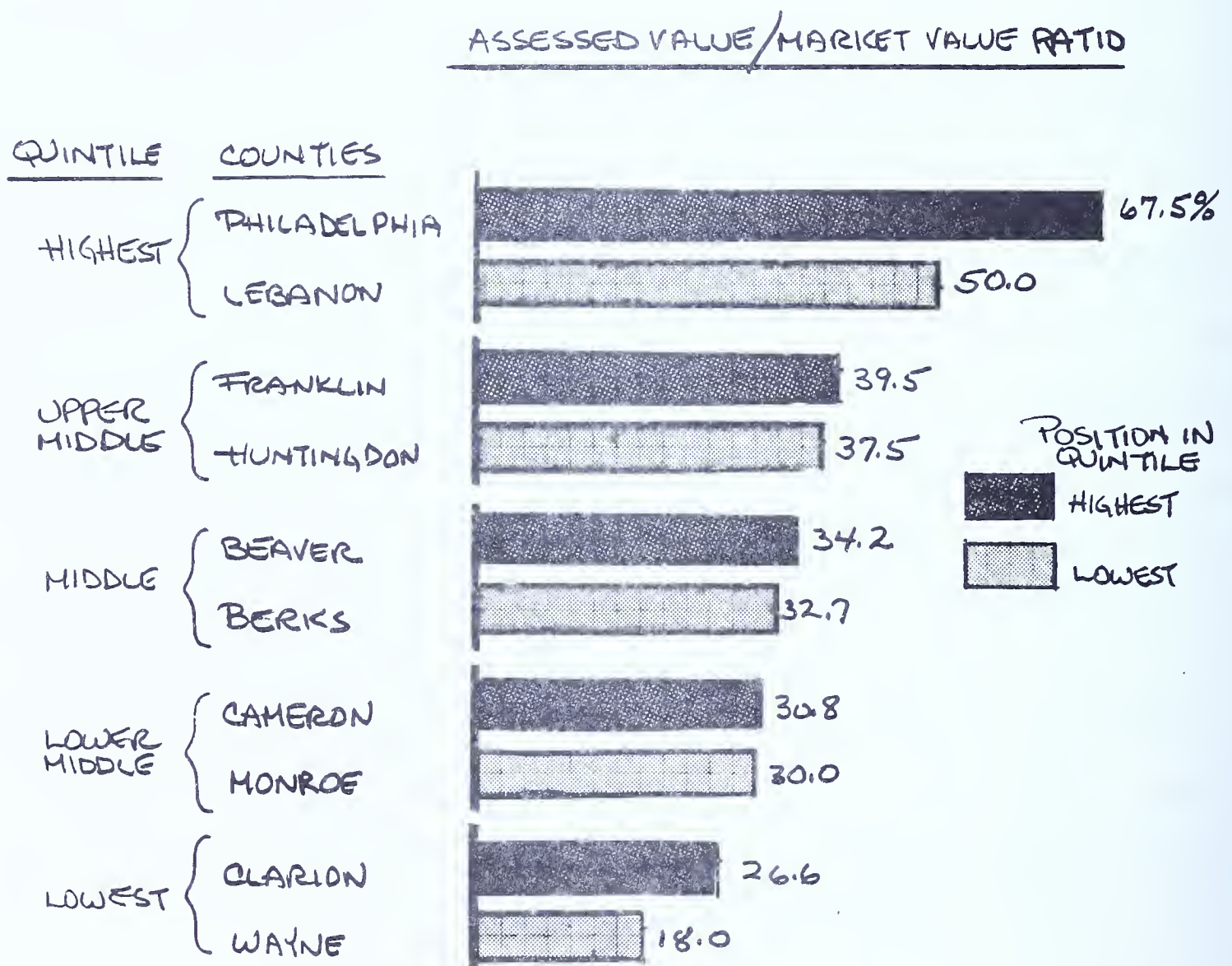
of counties are clustered between 39 and 65 mills. The top 20 percent, however, range from 65 to over 108 mills, while the lowest 20 percent range from 21 to 39 mills.

In Pennsylvania, county governments determine the tax base independently of local school district administrations. Therefore, for local districts, the tax base is a given. Rates must be set to raise the required revenue from the given base. But to the extent that assessed values are not a comparable measure of the value of taxable property between counties, nominal rates are not comparable either.

The range in the ratio of assessed value to market value of property in each county in Pennsylvania is from 18 percent for Wayne County to 68 percent for Philadelphia County. Exhibit 14, following, shows that the middle 60 percent of the State's counties, when ranked by assessment ratios, fall within a relatively narrow range between 30 and 40 percent. The top 20 percent, however, range from 40 to 60 percent, while the lowest 20 percent range from 18 to 30 percent.

Most of the range must be attributed to differing assessment practices among counties. (This significant nonuniformity in practices is a characteristic of Pennsylvania's current property tax system.) In any case, tax-base determinations are not within the school district's control, but instead represent a given against which they vary their tax rates to meet their revenue needs.

Assessment ratios range from 18 to 68 percent



The variations in assessment patterns and rate determinations can be washed out by ranking counties in terms of their effective tax rate, or rate per dollar of market value. By using market value as a base, the tax rate more nearly represents fiscal effort. That is, a tax rate on market value could be affected by demand for services (in this case, the number of pupils), service standards (or expenditure per pupil), and the property wealth of the area (or market value per pupil), but not by assessment ratio decisions.

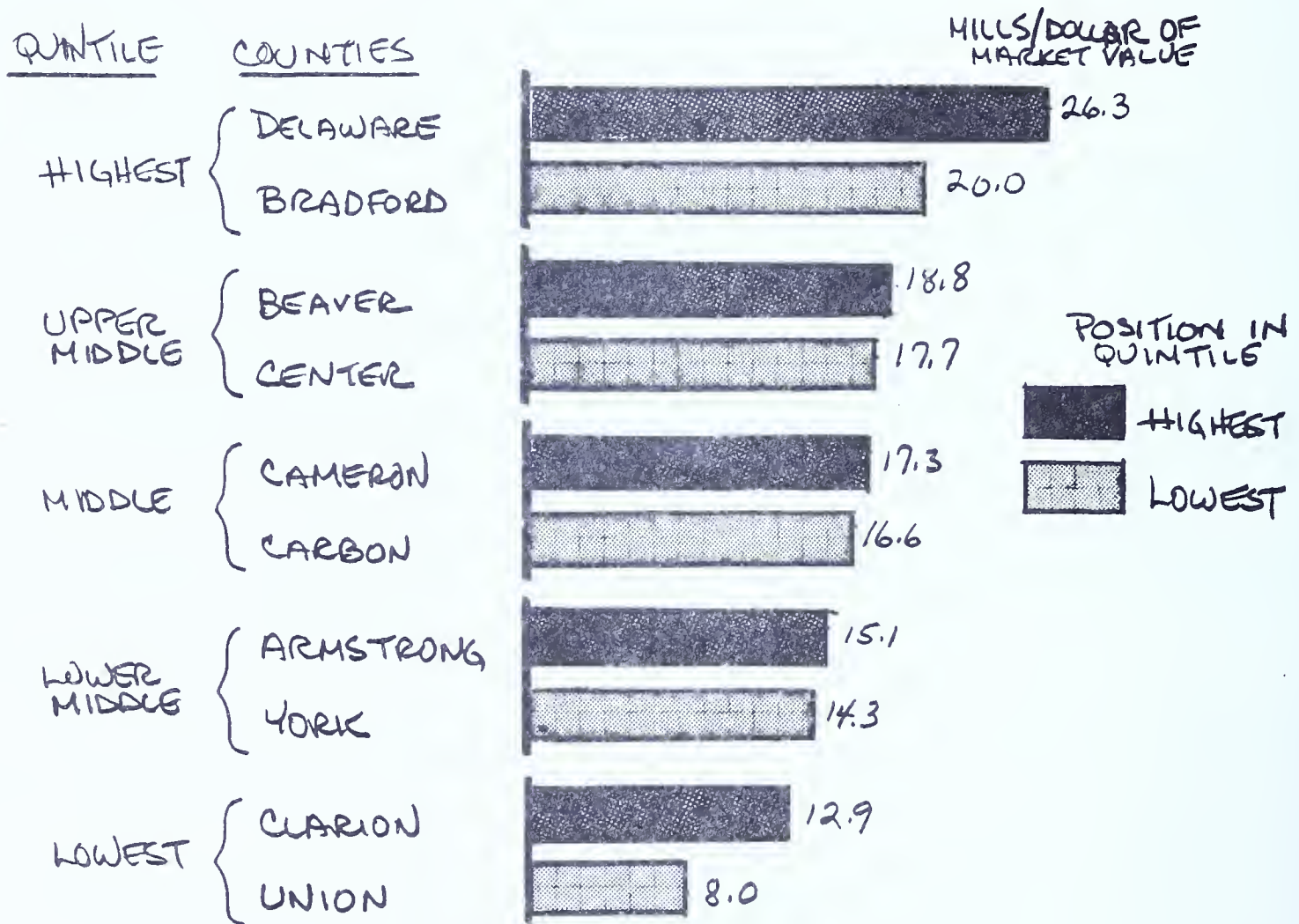
Exhibit 15, following, shows the range of effective property tax rates for school districts by county. Overall, the range is from 8.0 mills per dollar of market value to over 26.3 mills. The middle 60 percent of counties range from 14.3 mills to almost 19.0, while the top 20 percent range from 20.0 to 26.3 mills and the lowest 20 percent from 8.0 to 12.9 mills. This range in effective tax rates represents a very wide range of "fiscal effort" by school districts in financing education programs. Overall, the highest rate is 329 percent of the lowest. Even within the middle 60 percent of counties, the highest rate is 131 percent of the lowest.

Variations Within Counties

Many of the characteristics of the property tax that we have observed in this cross-county comparison are also present when municipalities within a given county are studied. Variations in rates are somewhat smaller, since all the municipalities share the same county rate. Nevertheless, differing school and

Thus, effective rates range from 8 to 26 mills

EFFECTIVE PROPERTY TAX RATES FOR SCHOOL DISTRICTS



municipal tax rates are sufficient to cause significant rate variations within counties. The similarity between cross-county variations and intracounty variations extends the generality of the discussion of rate and base patterns.

Effective tax rates for municipalities within Allegheny County are one example of intracounty tax rate variations. Exhibit 16, following, shows that the highest effective tax rate within Allegheny County is 266 percent of the lowest - 56 mills in Trafford compared to a 21 mills in Sewickly Hills. The middle 60 percent of municipalities in the county were bunched between 31.7 and 40.5 mills, while the top 20 percent ranged from 40.6 to 55.9 mills and the lowest 20 percent from 21.4 to 31.4 mills.

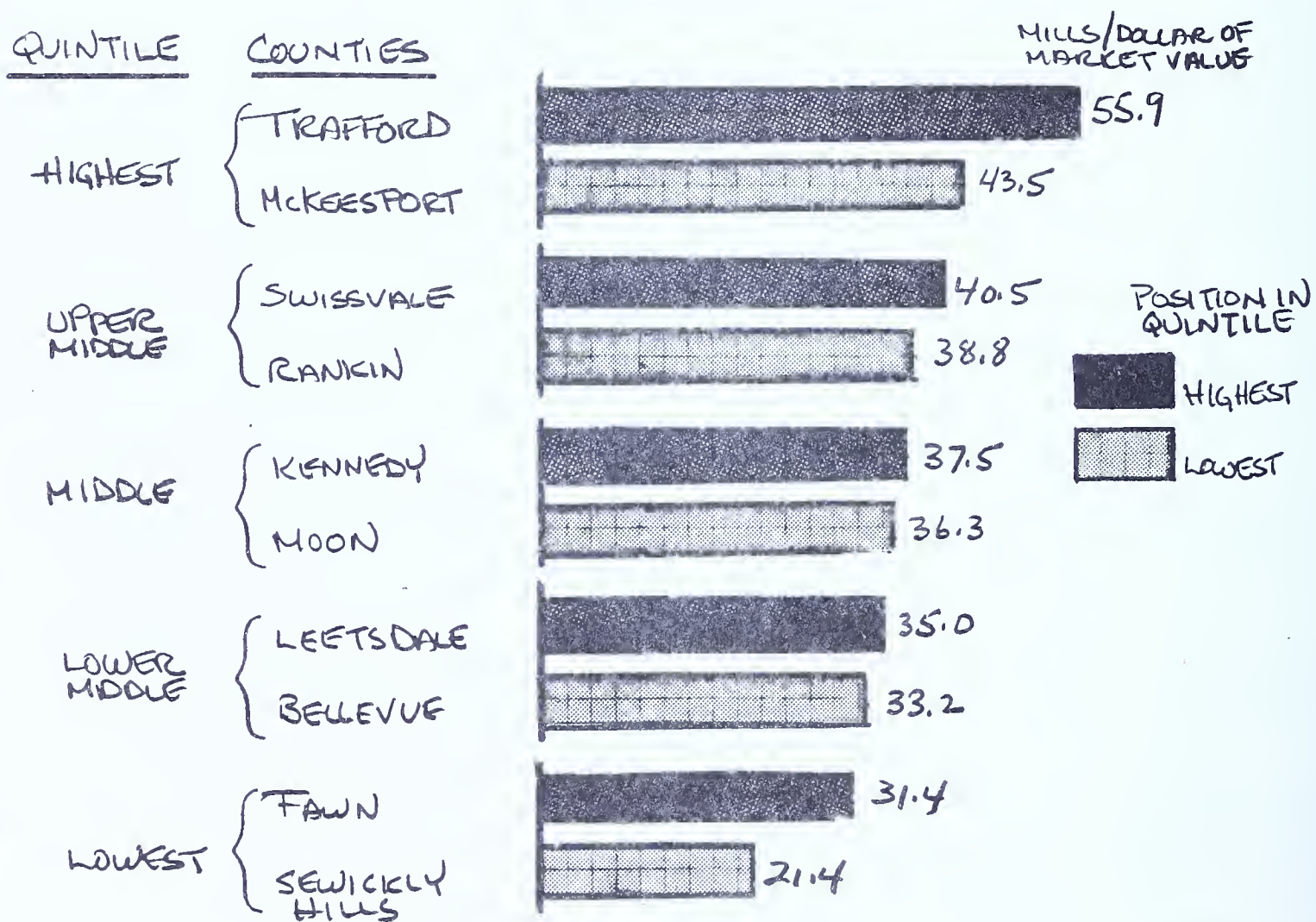
The wide variation in total effective tax rates from lowest to highest among municipalities in Allegheny County is only slightly more modest than the 325 percent variation in effective property tax rates for school districts by county. In particular, subtracting the effective county rate of about 7.5 mills shows that municipalities in that county vary from 13.5 mills to 38.5 mills per dollar of market value, or 286 percent. Thus, differences in "fiscal effort" and impact that exist between counties also characterize cross-municipal comparisons.

RELATING RATES AND BASES

Combining the variation in rate and base, it is clear that the property tax is not a "fiscally neutral" revenue source. Some areas must exert great "fiscal effort" to finance essential programs while others seem to be able to support themselves with relative ease. To see this effect more clearly, the variations

Within Allegheny County, effective rates range from 21 to 56 mills

AVERAGE EFFECTIVE PROPERTY TAX RATES



by rate and base can be arrayed in a matrix form. From this array, four base-rate combinations are apparent, as Table 9 suggests.

Table 9

	High Rate	Low Rate
High base	Wealthy counties with high service requirements	Wealthy counties with low service requirements
Low base	Poor counties with high demands for services	Poor counties with low demands for services

This matrix is used in Exhibits 17 and 18 and in the allocation of counties to the matrix the two highest quintiles in base are defined as high base; the two lowest quintiles as "low base." The same approach was used for rates. The results of this arrangement for Pennsylvania are shown on Exhibit 17, following/ the locations of the four types of counties defined by the base/rate array are shown on a map in Exhibit 18, following, and identified by shading as to their base/rate class.

The counties selected by this screening mechanism reflect the economic characteristics hypothesized in Table 9. In particular, the differences in base/rate patterns appear to reflect socioeconomic conditions in the individual counties. For example, high-base/high-rate counties tend to be such rapidly expanding suburbs of older, central cities as Montgomery County, Bucks County, and Chester County. Table 10 compares the income and population growth figures for these counties.

RANKING OF COUNTIES BY BASE AND EFFECTIVE RATE

	I	II	III	IV	V
I	21-Delaware 9-Ducks 15-Chester 46-Montgomery 43-Northampton 39-Lehigh 2-Alligheeny	36-Lancaster 6-Berks 25-Erie 65-Westmore		67-York 51-Philadelphia	
II		4-Beaver 10-Butler 63-Washington	5-Lackawana 3-Mercer 40-Luzerne 11-Cambria 54-Schuylkill 21-Cumberland	7-Blair 62-Warren	22-Dauphin 41-Lycoming
III		38-Lebanon 37-Lawrence 14-Center 32-Indiana 20-Crawford	11-Clearfield	3-Armstrong 26-Fayette 28-Franklin 45-Monroe 56-Somerset 19-Columbia 1-Adams	49-Northumberland
IV	30-Greene 42-McKear 8-Bradford 58-Susquehanna 61-Venango	59-Tioga	44-Mifflin 13-Carbon	24-Elk 5-Bedford 64-Wayne	16-Clarion 33-Jefferson 18-Clinton
V	66-Wyoming		12-Cameron 52-Pike 57-Sullivan 31-Huntingdon 53-Potter		27-Forest 34-Juniata 29-Fulton 47-Mentour 50-Perry 60-Union 55-Snyder

LOCATION OF COUNTIES BY RATE/BASE CATEGORY

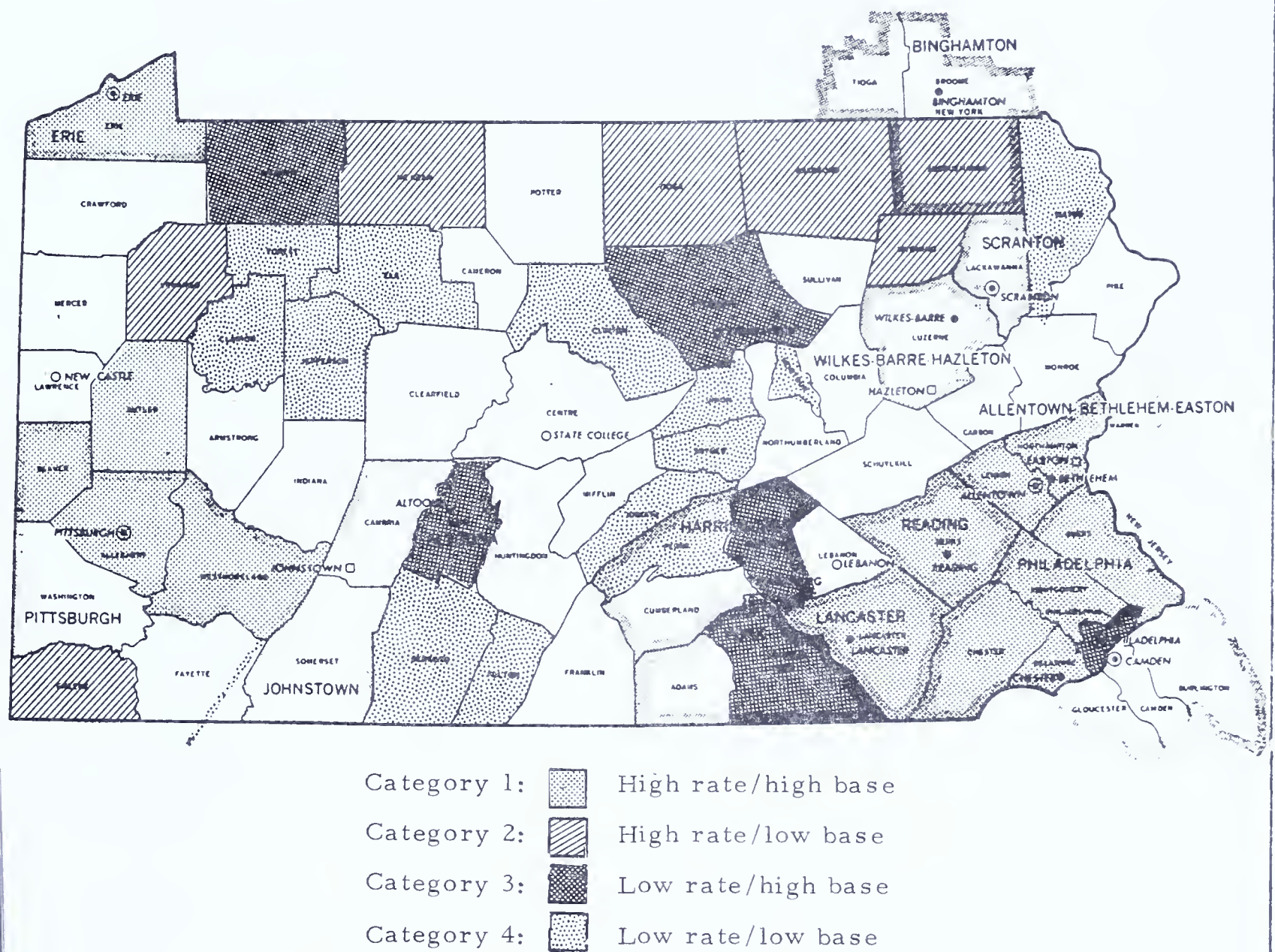


Table 10

<u>County</u>	<u>Ratio of Projected Increase In Income in County to Projected Increase Statewide (65 to 70)¹</u>	<u>Population Increase 1960-1970²</u>
Montgomery	1.12	20.7%
Bucks	1.05	34.5
Chester	1.14	32.1

1 - Based on National Planning Association projections.

2 - U.S. Department of Commerce Census, 1970.

High-base/low-rate counties are typically economically static areas with little or no growth in population and income. Table 11 shows the percentage changes in population for Dauphin and Blair Counties, two counties in this group.

Table 11

<u>County</u>	<u>Ratio of Projected Increase In Income in County to Projected Increase Statewide</u>	<u>Population Increase 1960-1970</u>
Dauphin	0.96	+1.6%
Blair	1.01	-1.4

Low-base/high-rate counties seem to be experiencing real economic decline. They have to tax themselves significantly higher than other counties to provide services to residents left after some employers have left. Table 12 compares percentage changes in income and population for three counties in this group - Greene, McKean, and Venango.

Table 12

<u>County</u>	<u>Ratio of Projected Increase In Income in County to Projected Increase Statewide</u>	<u>Population Increase 1960-1970</u>
Greene	0.948	-8.5%
McKean	1.009	-4.8
Venango	0.978	-4.5

Finally, low-base/low-rate counties tend to be poorer rural counties. Thus, even though they have a low property tax base, there is only a modest demand for services leading to a low tax rate. Table 13 compares current population and changes in population for three counties in this group - Juniata, Forest, and Fulton.

Table 13

<u>County</u>	<u>Current Population 1970</u>	<u>Increase in Income in Ratio of Projected County to Projected Increase Statewide</u>	<u>Population Increase 1960-1970</u>
Juniata	16,712	1.092	5.3%
Forest	4,926	1.096	9.8
Fulton	10,776	1.080	1.7

In Pennsylvania, as elsewhere, property taxes are clearly not neutral as a means of funding local education.

* * *

The central issue in the Serrano case, which was even more sharply stated in the New Jersey case, is that the use of local property taxes to finance education is not neutral with respect to local need for school revenues. As we have seen above, in Pennsylvania, the ability of local districts to raise property tax revenues is not neutral and is, in fact, biased against poorer districts with high service requirements. The extent of the bias is alleviated somewhat by a variety of State and Federal aid programs that tend to allocate funds by need. However, the basic problems raised by school financing court cases in other states exist in Pennsylvania, and the need for reform is equally great.

4 - EVALUATION OF CURRENT PROPERTY TAX SYSTEM

In the three preceding chapters of this report, we have described how Pennsylvania's current property tax system works and some of the problems inherent in the system. The major problems identified were the following:

- ¶ The fragmented and highly local nature of the tax system results in inequities - specifically, uneven tax burdens among jurisdictions and (because of nonuniform assessment practices) probably even within jurisdictions.
- ¶ Despite rapid rate increases, property revenue taxes have not been able to keep pace with the growing revenue needs of local government.
- ¶ As a means of funding primary and secondary education, Pennsylvania's current tax system is not "fiscally neutral," and, as a result, may be unconstitutional.

This chapter analyzes, in detail, characteristics of the tax system that underlie these problems. The results of these analyses show that there are five basic problems:

- ¶ The burden of the tax falls more heavily on low-income families.
- ¶ The burden of the tax falls unevenly on taxpayers who are in every other respect similar.

- ¶ The rate of revenue growth from the tax has been sluggish. The demand for revenues has far outstripped the ability of the tax to supply funds.
- ¶ The tax can distort business investment decisions - and in particular has probably contributed to inner-city housing decay
- ¶ Growth in property tax rates threatens continued investment in real property, and thus poses a threat to the State's future economic growth.

Each of these problems is discussed in the following sections of this report. The distribution of the property tax burden by income level is analyzed in the section on incidence. The section on horizontal equity considers variations in tax burdens on like taxpayers. Revenue growth is analyzed in terms of the components of growth in the section on elasticity. Distorted business investment decision and developmental problems are evaluated in the last section on neutrality and economic growth.

This chapter (and this report) does not discuss in detail inequities arising from the highly localized administration of the tax. Some of the specific administrative problems which have arisen in Pennsylvania are discussed in the O'Pake Report; more detailed study is required to determine the total impact of differing administrative practices on the equity (or revenue productivity) of the tax.

INCIDENCE OR VERTICAL EQUITY

A measure of the incidence of a tax is the ratio of taxes paid to income. In the case of the property tax, families pay property taxes on their residences - directly in the case of homeowners and indirectly in the case of renters. In addition, property taxes are a component of the costs of goods produced in industrial firms and sold through commercial establishments. The burden of these taxes may also be borne indirectly by households. To evaluate the overall burden of property taxes, each of these components must be considered.

For homeowners, taxes are paid on the assessed value of their houses. In our incidence calculations for homeowners, taxes were calculated as the market value of the house times the assessment ratio, times the stated tax rate. Because households at the same income level do not necessarily live in the same cost house, a distribution of house values for each income class was constructed and used. Incidence was calculated as the weighted average of the incidences of each component of the distribution. Because of the deductibility of property taxes for Federal tax purposes, we estimated tax incidence for homeowners on a before-and-after tax basis.

In the case of renters, taxes paid are typically a fraction of the monthly rental payment. Property taxes are a liability of the landlord. If the rental market is tight, and therefore relatively insensitive to price increases, the landlord will tend to raise his rents to recover the cost of property tax payments (in fact, many leases include automatic increase clauses to cover taxes). In effect, the landlord passes virtually the full tax burden forward to the tenant.

Industry surveys by, for example, the Institute of Real Estate Management show that the operating cost structure of the typical residential property includes an allowance for property taxes about equal to 25 percent of gross building rent. In our incidence calculations, we therefore assume that 25 percent of each month's rent would represent the indirect property tax burden imposed on tenants. This indirect property tax burden on renter families was combined with the direct burden on homeowners - using a weighted average - to give the total residential property tax burden.

Residential property is about 61.0 percent of the total assessed value of property in the State, and therefore contributes 61.0 percent of the revenues. Property taxes on commercial and industrial property may also impact on households. Taxes on these properties, however, are distributed in ways that have indirect and mostly limited impact on Pennsylvania households. For example, to gauge, roughly, the impact of commercial property taxes, one might assume that all taxes on commercial properties are passed on to consumers by their owners as a "cost" reflected in the prices of goods and services sold. If proportional to the residential property tax incidence, it would have the effect of increasing the tax burden on each income family by roughly 39.4 percent - the ratio of total commercial to residential property in the State. Alternatively, it could be assumed that the ultimate incidence of property taxes on commercial establishments would resemble the overall incidence of a very broad State sales tax. However, some of the property tax imposed on agricultural, commercial,

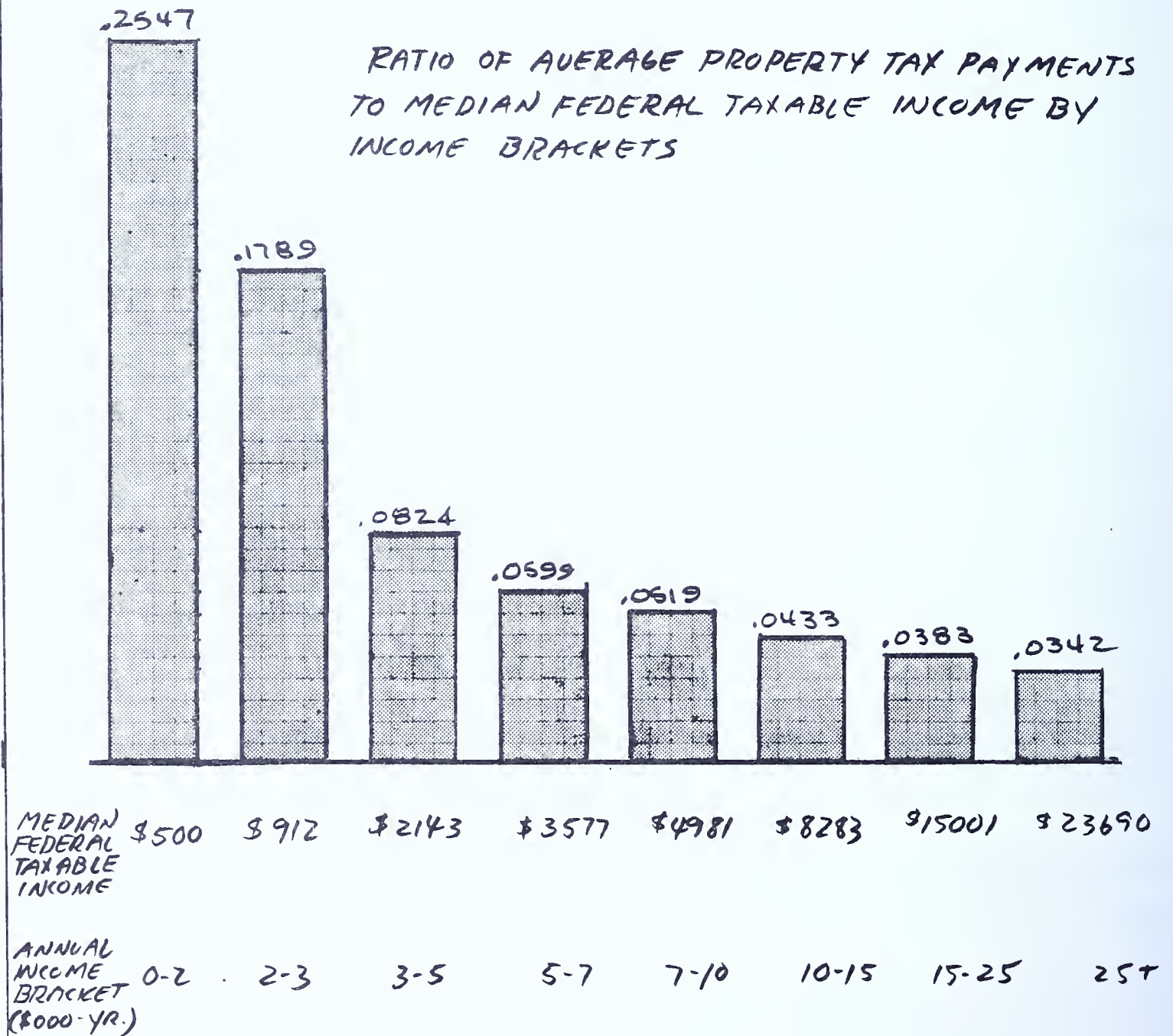
and industrial property may not be passed on to the consumer, but shifted in other directions, resulting in lower wages, lower prices paid for raw materials, or lower dividends to stockholders. Because it would be very difficult to determine even approximately the shifting of the commercial and industrial tax burden, we have not included any estimates of the amount passed on to consumer in the incidence calculations discussed in this section. This section, therefore, analyzes only the incidence pattern of property taxes on residential property.

Tax Incidence
Without Federal Offset

Residential property taxes fall heavily on low-income families. Exhibit 19, following, shows the pattern of decreasing incidence with rising incomes. Above an annual income of \$10,000 per household, the property tax appears to amount to about 4 percent of income. In this range, the incidence pattern appears to be roughly proportional to income. Below \$10,000 per year in household income, however, the property tax is an increasing fraction of income as income declines, and thus is clearly regressive.

The property tax rises from an incidence of 4.3 percent in the \$10,000 to \$15,000 per year bracket to 5.2 percent in the \$7,000 to \$10,000 bracket, an increase of over 22.0 percent. The incidence rises to 6.0 percent in the \$5,000 to \$7,000 a year bracket, and from there reaches 25.5 percent for the lowest income bracket, \$0 to \$2,000 per year. This tendency for the incidence of the tax to rise as income falls is a paradigm example of a regressive tax for the \$10,000 and under income brackets.

Relative property tax burden declines as income rises



SOURCE: MCKINSEY CALCULATIONS BASED ON
1970 CENSUS DATA

The very high incidence of taxes on low-income families requires some explanation: Low-income households tend to be small - one or two persons, often either aged or infirm. These households tend to allocate a high percentage of income to housing costs. However, many of these households may be living in units that are fully owned with no outstanding debt. Thus, although the property tax is a heavy burden, property taxes may constitute the major element of their housing costs. (Moreover, in Pennsylvania, a lot of the excessive burden is mitigated through the elderly credit system.)

The approach underlying these incidence figures is described in detail in an attached appendix. To summarize here, however, we simply note that the taxes paid for subgroups of households at each income level were estimated and the ratio of taxes paid to income calculated for each subgroup. The overall incidence figure for each income level is the average of incidences for the subgroups. Subgroups were defined by household size and occupancy - i. e., owner or renter. The tax rate used was the overall Statewide average effective rate.

Other methodological approaches have been used in an attempt to substantiate the claim that taxes on property are not regressive. Most of these analyses are based on the fact that higher income areas have higher market values. Thus,

taxes on market values would correspond to income, assuming that the "fiscal effort" between counties was the same so that rates could be about the same. *

Unfortunately, however, this approach obscures the impact of the tax on individual households. While it is possible that the total earned income of a school district's households would bear some relationship to the total market value of property in the district, families within that district would pay significantly different amounts of tax. Focusing on total earned income and total market value not only makes a calculation of the incidence of the tax impossible, but it obscures the fact that the total earned income in the district may be distributed in such a way that lower income households within the district may pay a larger percentage of income in taxes than higher income households.

Tax Incidence After Federal Offset

Under current law, the Federal Government shares with each owner household a portion of the cost of owning a house by allowing the owner to deduct property taxes paid on his home from his gross income. Renters, however,

* - For example, a Pennsylvania Department of Education analysis showed that the market value of real property was very closely correlated with total earned income per school district. The coefficient of correlation was found to be 0.9642 with probable error, ± 0.0022 . Market value was calculated from the State Tax Equalization Board's 1968 certifications, and earned income was estimated from the Earned Income Tax as reported in the 1968-1969 Annual Fiscal Report. There were 464 school districts involved in this analysis. Of the 741 school districts then existing, 575 collected wage and income taxes, but only 464 of them reported complete rate and yield information in their annual reports.

because they are taxed indirectly, are not able to claim this deduction. The structure of the Federal income tax system, therefore, affects the incidence pattern of the property tax for owners and, therefore, the overall incidence of residential property taxes.

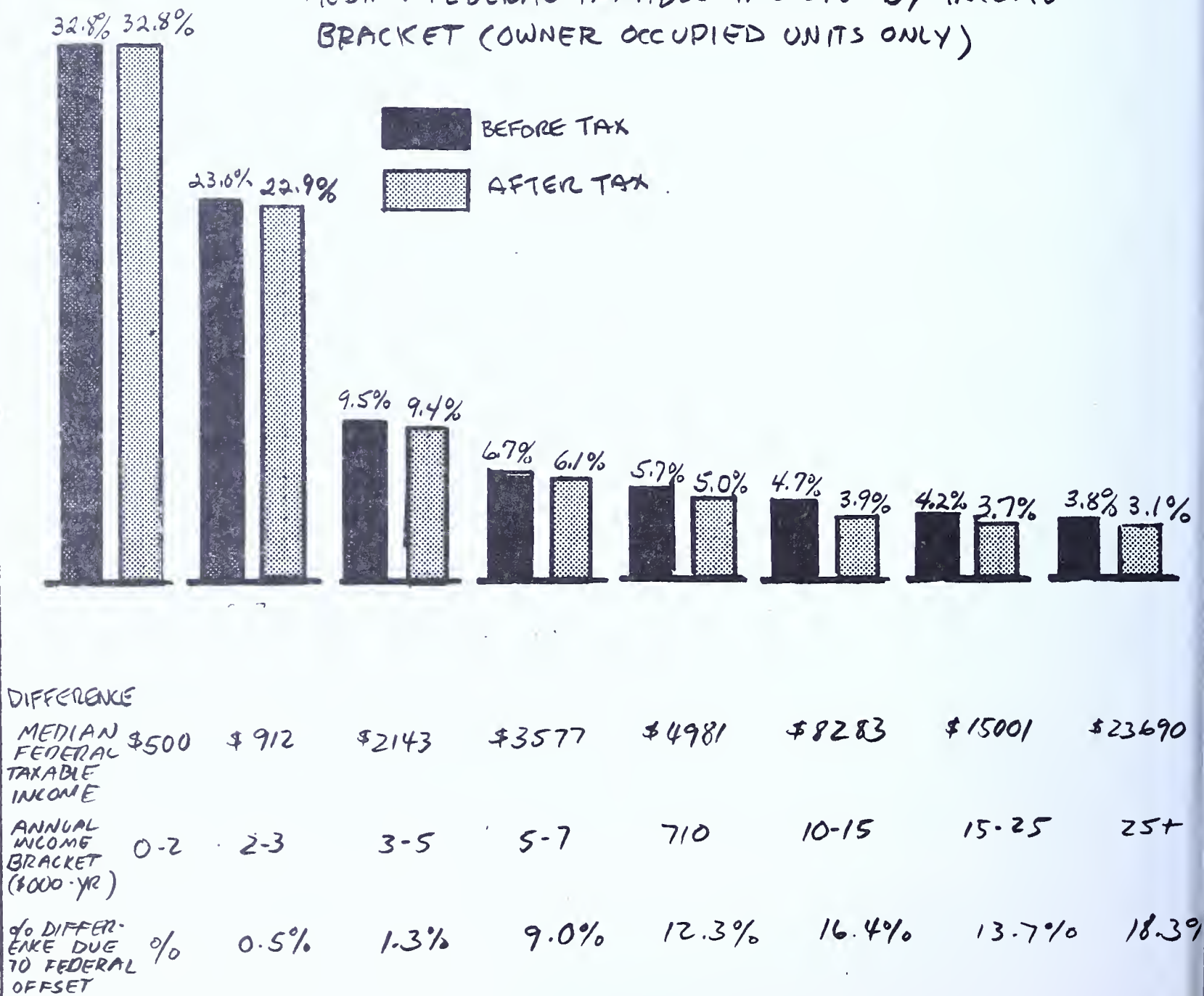
Our approach to calculating the Federal income tax benefits to owners required a calculation of the Federal taxes that would have been paid in 1970 by a household of each size and income level. Based on these taxes, the marginal Federal tax rate was estimated from Federal tax tables for that year. Tax savings then are equal to the deduction for local property taxes by every household at each household size and income bracket multiplied by its appropriate marginal tax rate.

In Pennsylvania in 1970, the deductibility provisions of the Federal income tax system with respect to property taxes reduced Federal income tax liability of Pennsylvania homeowners by about \$155.00 million, or approximately \$61 per owner household in that year. Therefore, owners paid about \$1.40 billion in property taxes to local governments, and paid \$155.00 million less in Federal income taxes. Net property tax payments by owners were thus \$1.25 billion. The Federal tax deduction reduced the impact of total local property taxes about 11 percent.

Because of the progressive structure of Federal income tax rates, a deduction against taxable income is worth more to households with high incomes (and, therefore, in higher income tax brackets) than to households with low incomes. For example, the average Federal income tax rate on one household may be

Federal deductibility increases slightly the regressivity of the tax

RATIO OF AVERAGE PROPERTY TAX PAYMENTS TO
MEDIAN FEDERAL TAXABLE INCOME BY INCOME
BRACKET (OWNER OCCUPIED UNITS ONLY)



20 percent, and on a second, 50 percent. If the first household has a deduction of \$1,000 against taxable income, then there is a reduction in tax liability of \$200, or 20 percent of \$1,000. For the second family, however, there is a reduction in tax liability of \$500. Thus, the same type of deduction is worth more to higher income families than lower income.

The impact of this characteristic is seen in the comparison of the incidence figures for owners, before and after Federal income tax. Exhibit 20 shows that benefit of the deductibility of local property taxes increases as income increases and, for the highest income bracket, reduces the incidence of property taxes by 18.2 percent. By contrast, lower income families pay less Federal taxes to begin with and, therefore, the deduction is less valuable to them.

The effect of the deductibility provision of Federal tax law: (1) lowers the overall property tax burden; but (2) increases the overall regressivity of the property tax because of the increasing value of property tax deductions with income (see Exhibit 20). As the exhibit shows, both incidence patterns start at the same point since the value of the deductions at low incomes is negligible. At higher incomes, however, the after-tax incidence drops off more rapidly than the before-tax pattern, demonstrating the greater regressivity of the property tax after allowing for the Federal tax offset.

Summary

Taxes on residential property show a distinctly regressive incidence pattern when they are calculated on a household basis, taking into account actual incomes and house values or rents, as tabulated in the 1970 census. The incidence is

particularly regressive for families with incomes under \$10,000 per year. For households with incomes above \$10,000, the overall pattern is approximately proportional. Inclusion of Federal tax benefits for owners accentuates the regressivity of the owner incidence pattern and increases the regressivity of the overall incidence pattern.

HORIZONTAL EQUITY

In the third chapter of this report, we discussed, in the context of school financing, the wide variations in property tax burdens across the State. These variations can be characterized as a major horizontal inequity in the tax system - i. e., although two taxpaying families may be "economically identical," they may well bear very different tax burdens because of the relative property-wealth of their respective taxing jurisdictions. In fact, this inequity is at the heart of the constitutional challenge to local property taxes as a means of funding primary and secondary education.

Similarly, in the first chapter of this report, we briefly noted the likely inequity resulting from lack of standardization of assessment practices and policies across the State. The popular folklore of Pennsylvania (and elsewhere) is full of stories about taxpayers living on identical properties within a single taxing jurisdiction, but bearing different property tax burdens because of different assessments to their properties.

In this section, we discuss two other aspects of the horizontal inequity inherent in Pennsylvania's property tax system: (1) the differing tax treatment

(and tax burden) of renters compared to homeowners; and (2) the variations in tax burden by family size. As was the case in the previous discussions of inequity, Pennsylvania's property tax is inequitable for both of these situations.

Owner Versus Renter

On the surface, Pennsylvania's current property tax system appears to discriminate in favor of homeowners against renters. Rental property is generally classified as commercial, and assessment ratios for commercial property have been consistently higher than the assessment ratios for residential property. Table 14 shows the assessment ratio (assessed value to market value ratio) in 1967 and 1970 for the four largest types of property comprising the State's property tax base.

Table 14

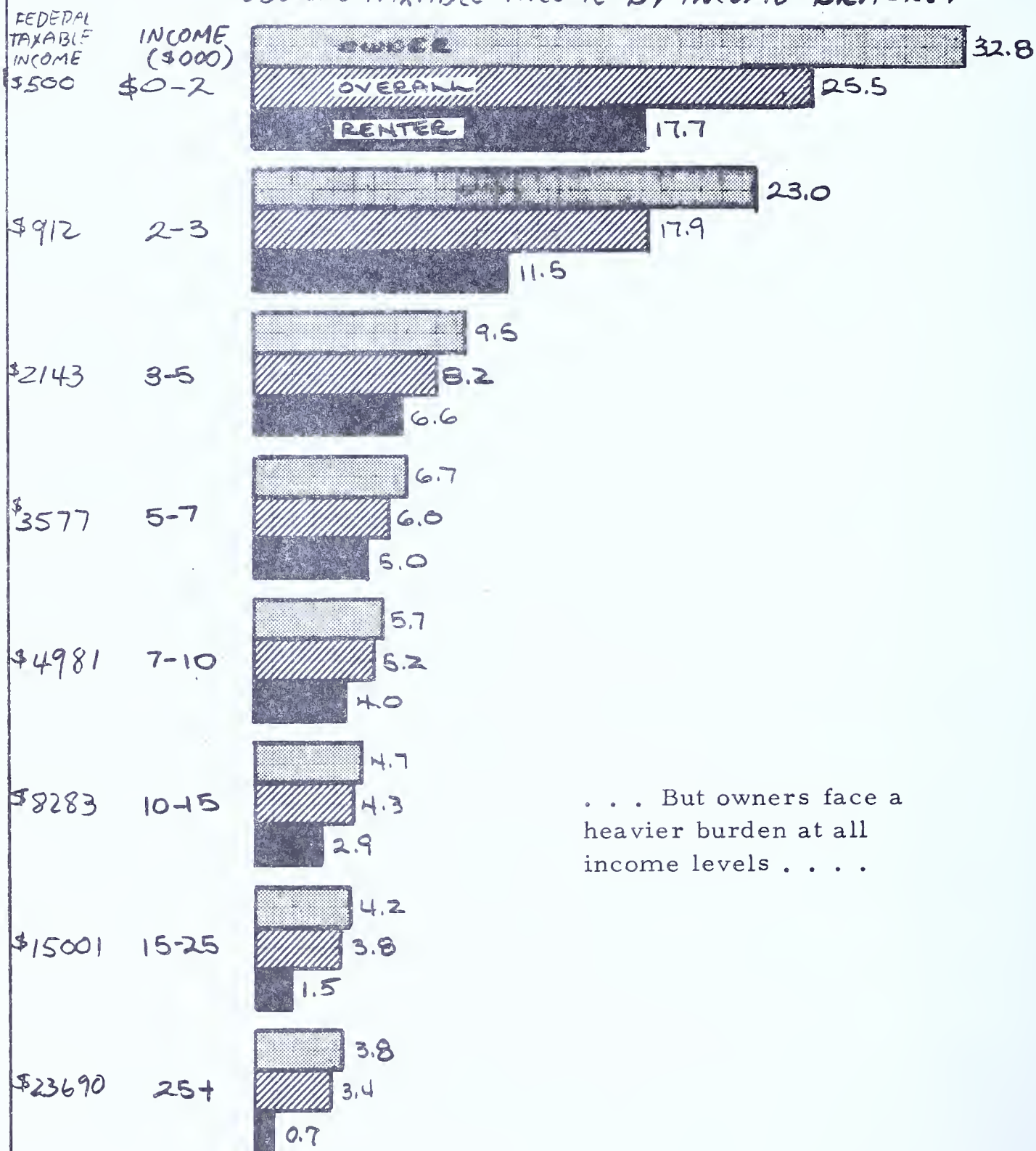
<u>Type of Property</u>	<u>Assessment Ratio</u>	
	<u>1967</u>	<u>1970</u>
Residential	32.9%	27.5%
Commercial	37.4	32.6
Industrial	49.7	38.4
Agricultural	21.1	14.9

Source: Statewide weighted averages based on STEB data.

Assessment practices are a highly variable phenomenon throughout the State. It would be difficult to assert that differences in assessment ratios are a matter of policy. Nevertheless, assessment ratios on commercial buildings have been

Property taxes are regressive for both owners and renters . . .

RATIO OF AVERAGE PROPERTY TAX PAYMENTS TO MEDIAN FEDERAL TAXABLE INCOME BY INCOME BRACKET



. . . But owners face a heavier burden at all income levels

SOURCE: MUCINSEY CALCULATIONS BASED ON 1970 CENSUS DATA

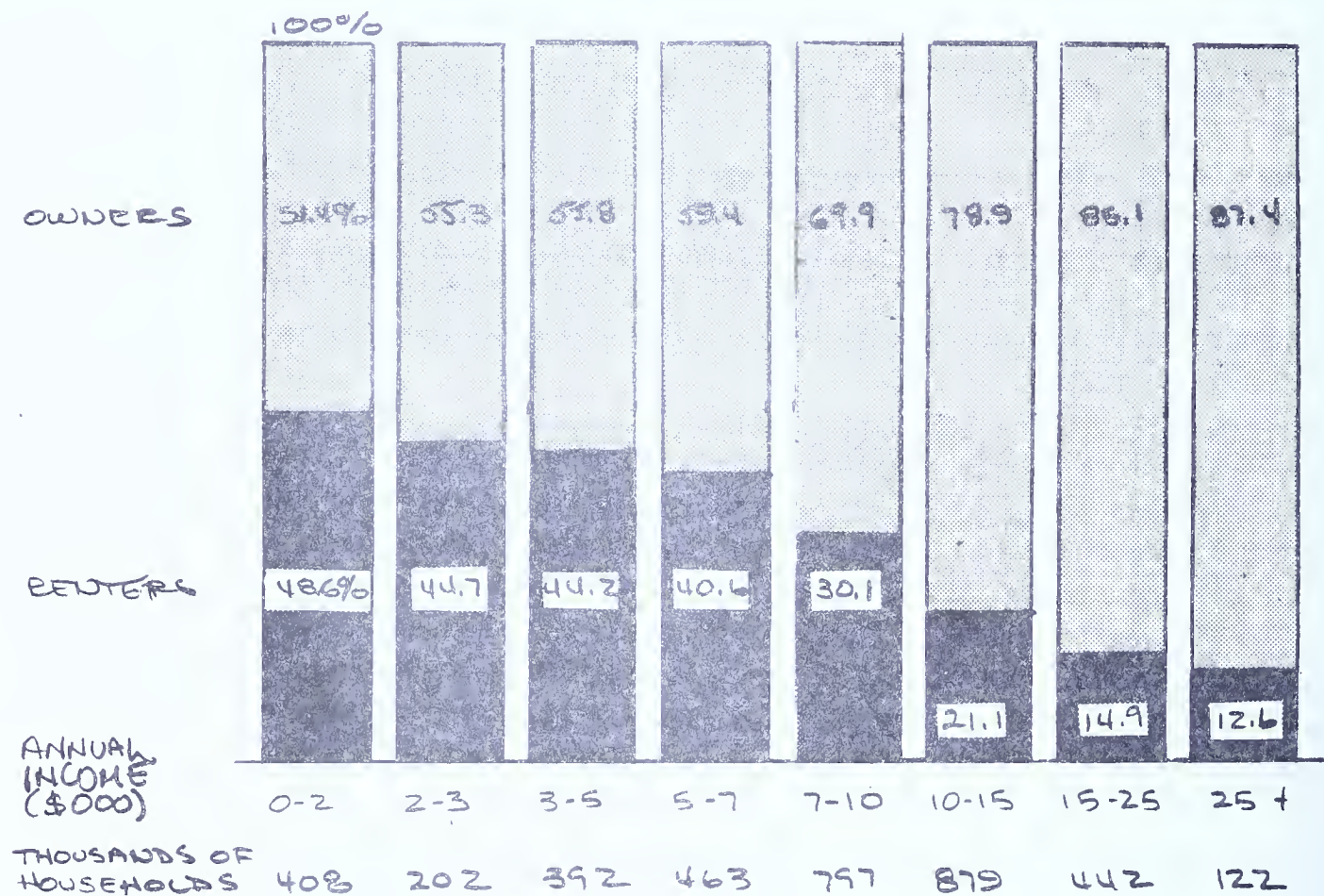
higher than those on residential property at least since 1967. These assessment patterns suggest that renters have been paying 10 to 15 percent more property tax than they would have been paying had they been assessed at residential ratios.

Despite this apparent discrimination against renter households, the actual taxes paid by renters may be less as a percentage of income than the taxes paid by homeowners at the same income level. As noted above, property taxes on multifamily rental buildings are assessed on the owner of the building, not on the residents. The owner, however, may pass the property tax on to the tenants as a building operating cost if market conditions permit. Surveys of building operating costs, such as the annual report of the Institute of Real Estate Management, show that the property tax portion of the monthly rental payment is about 25 percent - somewhat higher for low-rent units and lower for high-rent units. Tenants are thus taxed indirectly, and making a precise estimate of their tax burden relative to homeowners is difficult.

Making the assumption that all renters pay 25 percent of their rent in property taxes results in the incidence patterns for owner and renter households (compared to the State overall incidence pattern) shown on Exhibit 21. From the exhibit, it appears that: (1) owners bear a heavier tax burden at all income levels than renters; and (2) the pattern of owner incidence is more regressive at very low income levels than the pattern of renter incidence - i. e., the relative tax burden on owners increases more rapidly as income falls than the tax burden on renters. These incidence patterns are a reflection of the fact that owner

Renter households are concentrated in lower income brackets

PERCENT. OF HOUSEHOLDS



households at all income levels - and particularly at lower income levels - "consume" more housing than comparable renter households.

Another aspect of owner/renter incidence patterns is the fact that renters do not benefit from the property tax deductibility provisions of Federal income tax laws. Landlords receive the deduction for property taxes, not the tenant. However, there is no special economic or financial benefit to the landlord for this responsibility. Rental property taxes are simply another cost to be deducted from receipts. The only effect of the tax law is to increase the net incidence of the property tax on renters rather than owners. However, after allowing for the Federal offset, owners still pay more net property tax than renters - although the differential is less because of the Federal tax benefit to homeowners. (In total, the loss of Federal income tax deductions for renters costs renter households in the State about \$38 million, or about \$33 per household per year.)

The higher relative tax burden on owners, as compared to renters, should not obscure the fact that, in aggregate, renters bear a disproportionate share of the total property tax burden in the State. In Pennsylvania, almost 2.2 times as many households own their own homes as rent them. In addition, renter households tend to be concentrated in lower income brackets (see Exhibit 22) than owners, thus representing a smaller proportion of households at a given income level as income increases. As a result, renters who represent 31.0 percent of the population and have about 23.7 percent of the total personal income in the State pay about 27.0 percent of all residential property taxes.

In summary, owners and renters are not treated equally under the State's current property tax system:

¶ Renters' buildings are assessed at higher fractions of market value and, therefore, pay higher taxes than the equivalent apartment value constructed as a single family unit.

¶ Renters do not receive deductions for the property taxes they pay through their rent.

However, because of the propensity of homeowners to pay more of their income on housing than renters, homeowners bear a heavier tax burden at all income levels than renters.

Different Size Families

The incidence of property taxes varies by household size, because different size families have different space requirements for housing. In general, the principle of equity would suggest that like taxpayers be taxed alike. Since 2-person households are different from 6-person households, they should presumably be taxed differently. Because a 2-person household in a given income bracket has more discretionary income than a 6-person household, the argument might be made that 6-person households should be taxed less.

In fact, the patterns of incidence for owners and renters by household size, shown in Exhibits 23 and 24, show that the incidence of these taxes generally increases as household size increases. For renters, the increase in incidence is less consistent but generally apparent. In summary, real property taxes impose a disproportionately heavy burden on large families.

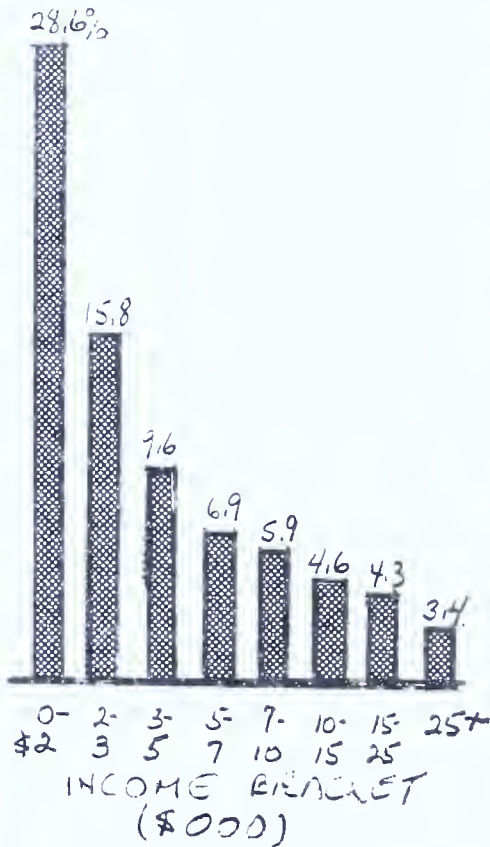
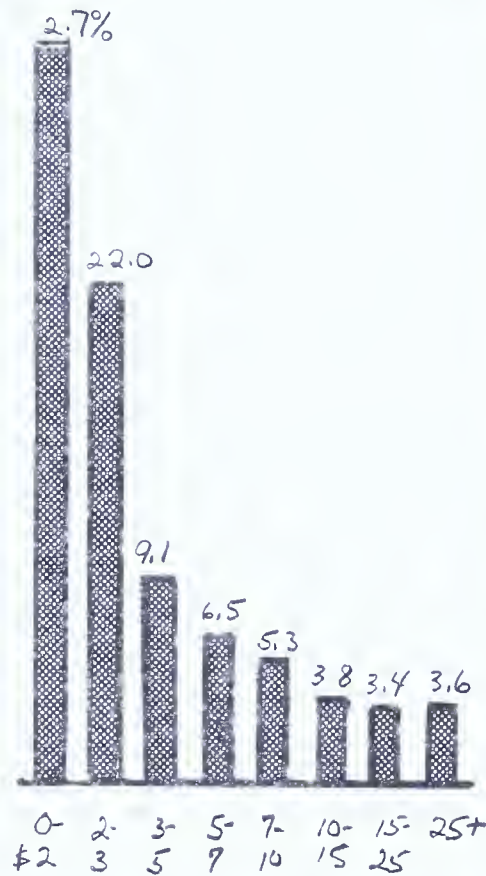
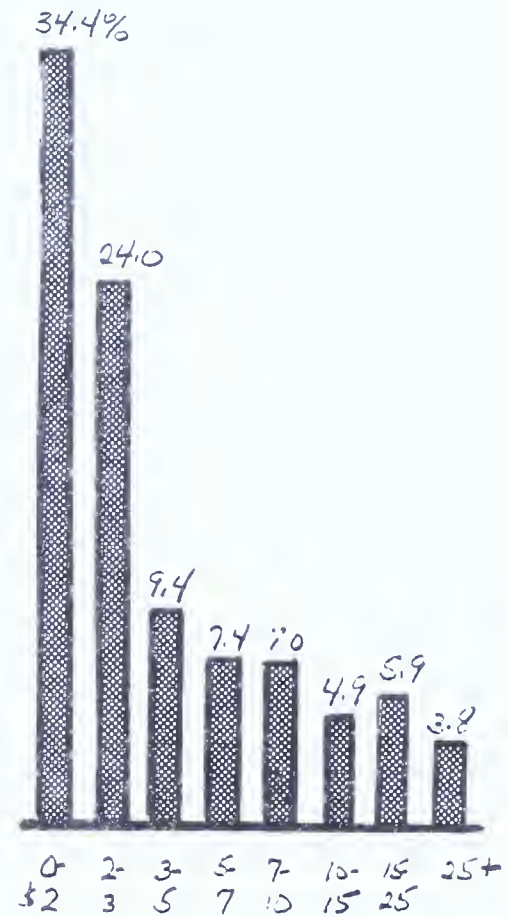
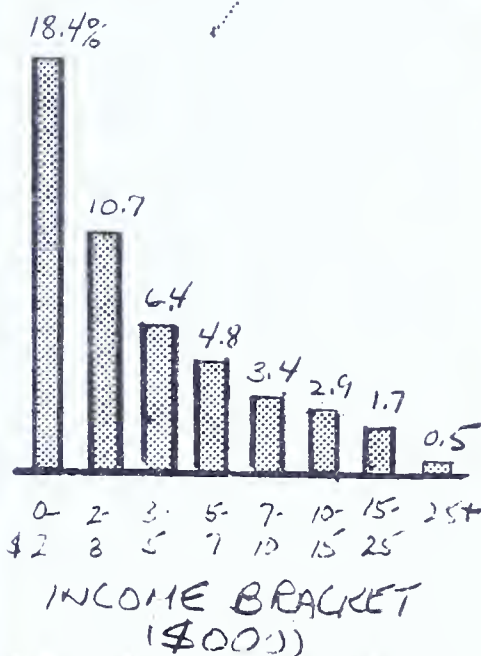
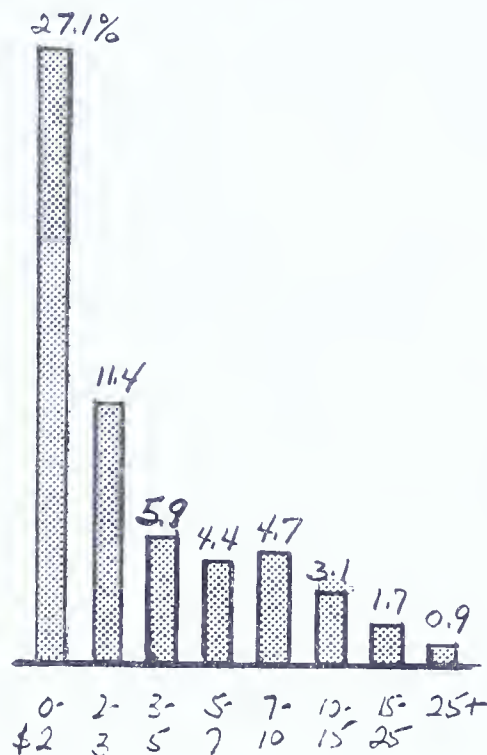
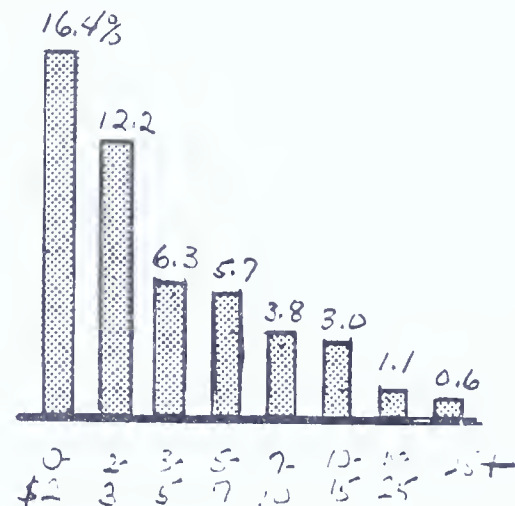
PROPERTY TAXES AS A % OF FEDERAL TAXABLE INCOME BY INCOME BRACKETS2 PERSONS4 PERSONS6 PERSONSRENTER INCIDENCE PATTERNS

Exhibit 24

2 PERSONS4 PERSONS6 PERSONS

ELASTICITY

The elasticity of a tax is its ability to grow in yield without rate changes, in response to increasing incomes. For example, sales tax revenues grow as income grows, because income growth leads both to more spending and to shifts in the composition of spending, both of which result in increased tax revenues. Factors leading to growth in the property tax base, however, are somewhat more complex.*

Market values can increase in response to two factors: (1) an increase in the market value of existing property, and (2) additions to the inventory of existing property. Changes in population, income, and income per household are, in turn, the motivating forces behind both factors. For example, increasing demand due to rising population and incomes will result in increased market values, because existing housing and other property will take on an additional scarcity value, and production will increase to meet this new demand (assuming that the return on real property investments compares favorably to other opportunities competing for the investor's attention).

* - The property tax base may increase due to an increase in market values underlying the tax base, an increase in the assessment ratio applied to the base for tax purposes, or both. However, an increase in the assessment ratio would, at least in theory, be offset by a decrease in nominal rates - given that it increases the effective tax rate without increasing the underlying base of market values. Increases in market values, therefore, constitute the key measure of elasticity of the property tax base.

In this report, we will not attempt to specify the exact relationship between population and income growth, on the one hand, and increases in the market value of the property tax base. An important aspect of that relationship, however, can be illustrated by an analysis of the components of change in the increase of the property tax base. This analysis shows that the property tax base has grown sluggishly and that most of the growth has come from new residential construction. This predominance of new construction is clearly a reflection of the inability of the current tax system to "track" changes in market value of existing property over time.

This section develops these findings by first analyzing changes in the assessed value of properties from 1968 to 1970, and second, by analyzing the impact of different growth rates in market values for each property class on the total market value base underlying the property tax.

Components of Change In Assessed Values

According to our survey of STEB records, assessed values increased from \$18.1 billion in 1968 to \$19.7 billion in 1970. (Differences between survey results and totals reported by the STEB are attributable to the methodology used in the survey which is detailed in an appendix.) The increase in assessed values over this 2-year period was about \$1.6 billion. Of this amount, residential property accounted for \$0.9 billion of the increase, commercial property for \$0.4 billion, industrial property for \$0.1 billion, and other property classes for \$0.2 billion. Table 15 summarizes these changes.

Increases in residential assessed value are a large part of total assessed value gains

CHANGE IN RESIDENTIAL ASSESSED VALUE AS A PERCENTAGE

CHANGE IN TOTAL ASSESSED VALUE BY COUNTY

(1968-1970)

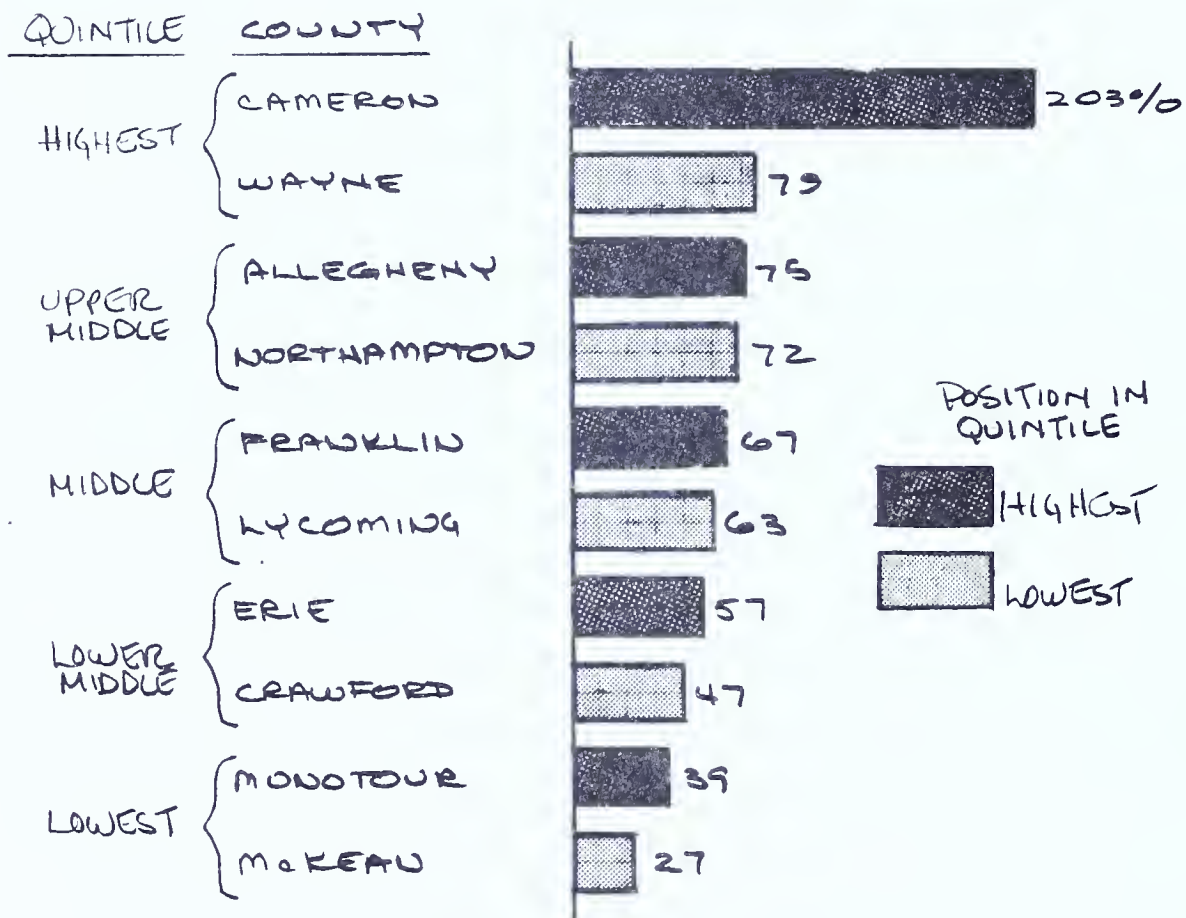


Table 15

<u>Property Class</u>	<u>Change in Assessed Value (\$ Thousands)</u>	<u>Change as a Percentage Of Total Change</u>
Residential	\$ 953,230	61.7%
Commercial	399,889	25.89
Industrial	97,870	6.34
Other	93,186	6.03
Total	\$1,544,175	100.00%

Source: Survey of STEB records.

In some counties, the increase in residential assessed valuations, as a percentage of the total increase in assessed valuation, was even greater than the Statewide average. Exhibit 25 shows that in Cameron County the ratio of change in residential assessed values to total change in assessed values was 203 percent - due primarily to reassessments that lowered the value of other classes of property. The middle 60 percent of counties, ranked by their ratios of change in residential assessed value to change in total assessed value, however, ranged from 47 to over 75 percent. Thus, in more than half the counties, or 50 out of 67 counties, the increase in residential assessed values, as a percentage of total change in assessed values, was greater than the comparable Statewide average. Many counties, therefore, would have experienced little or no growth in the property tax base had residential assessed values not increased.

Increases in residential assessed values, however, are primarily attributable to the construction of new residential units. Increases in assessed value could result from three different factors: new construction, revisions to existing valuations, and net other adjustments. New construction represents the assessed value of new property placed on the tax rolls. Revisions generally represent revaluations of property on the books. Net other adjustments represent the net of additions or subtractions, depletions (from such causes as natural disaster or demolition), annexations, and recalculations. New construction accounted for \$534 million of the \$932 million increase in assessed values between 1968 and 1970. Table 16 summarizes the components of change in residential assessed values.

Table 16

<u>Component of Increase</u>	<u>Amount</u>	<u>Percentage of Total Increase</u>
New construction	\$534	56.03%
Revisions	389	40.93
Net adjustments	<u>29</u>	<u>3.04</u>
Total	\$953	100.00%

Source: Survey of STEB records.

New residential construction was even more concentrated than the total change in residential assessed values. For example, the top six counties in a ranking of counties by new construction, as a percentage of change in residential

valuations, all experienced new construction significantly in excess of the overall increase in residential assessed values. Table 17 shows that these ratios ranged from 167 to 272 percent for the top six counties.

Table 17

<u>County</u>	<u>New Residential Construction as a Percentage of Change In Residential Assessed Values, 1968-1970</u>
Westmoreland	272%
Huntingdon	237
McKean	229
Beaver	180
Clarion	176
Jefferson	167

Source: Survey of STEB records.

In sum, many counties would have experienced little or no growth in the property tax base had residential assessed values not increased.

Increases in commercial, industrial, and other property assessments, which together accounted for slightly less than half of the overall increase in the assessed value of property in the State from 1968 to 1970, were similarly dependent on new construction. In fact, for both commercial and industrial property classes, the overall increase was less than the new construction recorded in the period.

Table 18

<u>Property Class</u>	<u>Increase in Assessed Values</u>	<u>New Construction</u>	<u>New Construction As a Percentage Of Overall Increases</u>
Commercial	\$399 million	\$471 million	118%
Industrial	95	98	103

Source: Survey of STEB records.

Thus, while Statewide assessed values increased, most of the increase was due to new construction. Table 19 summarizes the components of change in assessed values by property class. The totals from this table show that, while the overall increase was \$1.5 billion from 1968 to 1970, the new construction recorded in the same period was \$1.1 billion or almost 75 percent of the total, and almost half the new construction (in terms of assessed valuation) was residential.

Table 19

<u>Property Class</u>	<u>Increase in Assessed Values</u>	<u>Components of Change</u>		
		<u>New Construction</u>	<u>Revisions</u>	<u>Net Adjustments</u>
Residential	\$ 953	+534	+390	+29
Commercial	400	471	-4	-67
Industrial	98	98	+1	-1
Other	93	15	+153	-75
Total	\$1,544	1,118	540	-114

Source: Survey of STEB records.

Growth in the existing property tax base per se (i. e. , assessed valuations net of new construction) has been sluggish. Increases due to revaluations of property accounted for less than 1 percent of the total assessed valuation in the State in 1970. The overall increase between 1968 and 1970 was about 12 percent of the 1968 base and was mostly due to new construction.

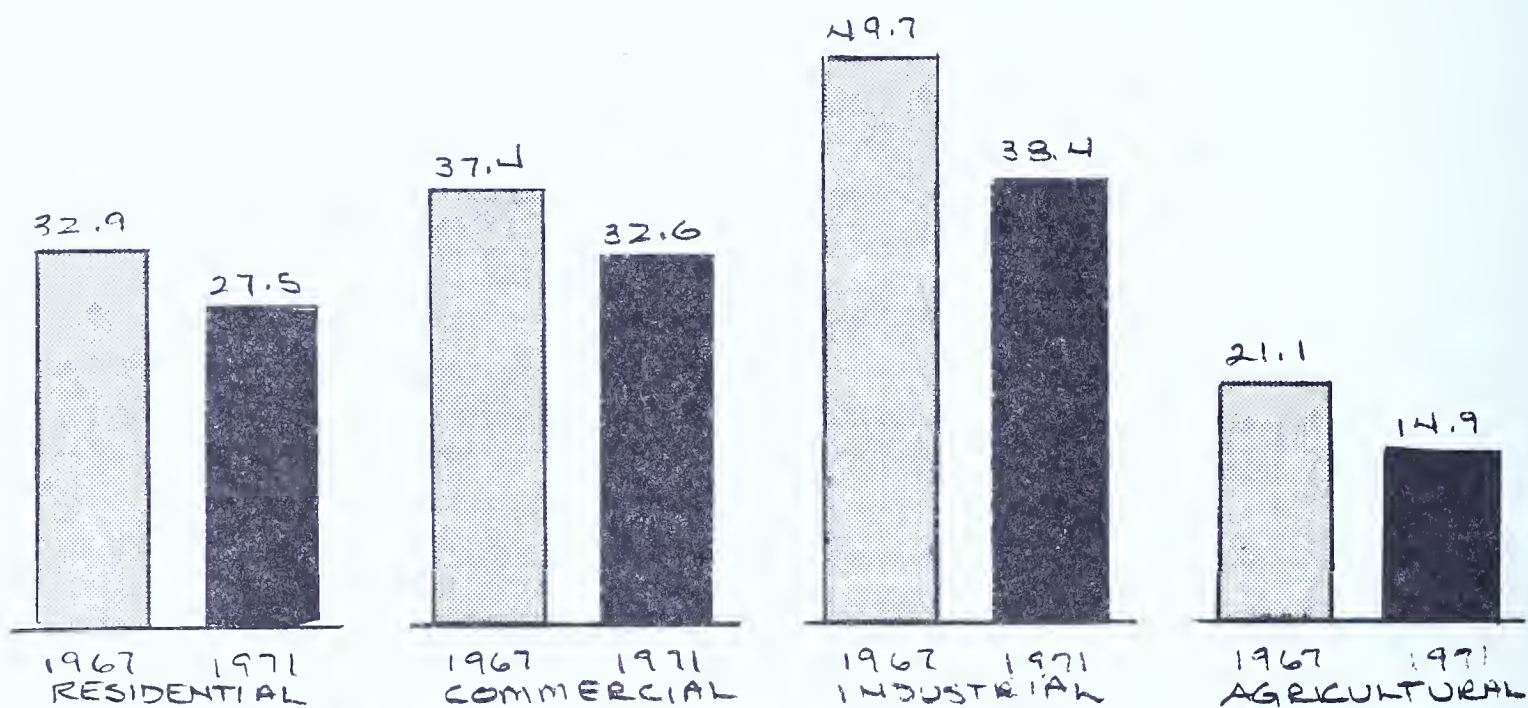
A faltering in the rate of new construction, therefore, could drastically reduce the growth of the tax base. New construction of residential and commercial properties accounted for about 90 percent of all new construction in terms of assessed valuations. The volatility of these two types of construction implies that growth in the tax base from these sources would be unpredictable over the short term. The fact that new construction so predominates as a cause of increases in the tax base underscores the difficulty of tracking changes in the value of existing property under the current tax system.

Increases in Market Values

A reasonable rate of increase in market values, not reflected in the assessed value tax base, has apparently taken place over the last 5 years. Using the STEB data, it is possible to determine that, overall, the ratio of its assessed value to the market value of the whole base has been falling. The overall assessment ratio, based on price information on parcels that sell collected by the State Tax Equalization Board, has fallen at an average annual rate of 4.8 percent from .332 in 1967 to .274 in 1971. This average annual rate of decline would be equal to an appreciation in market value of about 5.0 percent a year if there were no change in the assessed values.

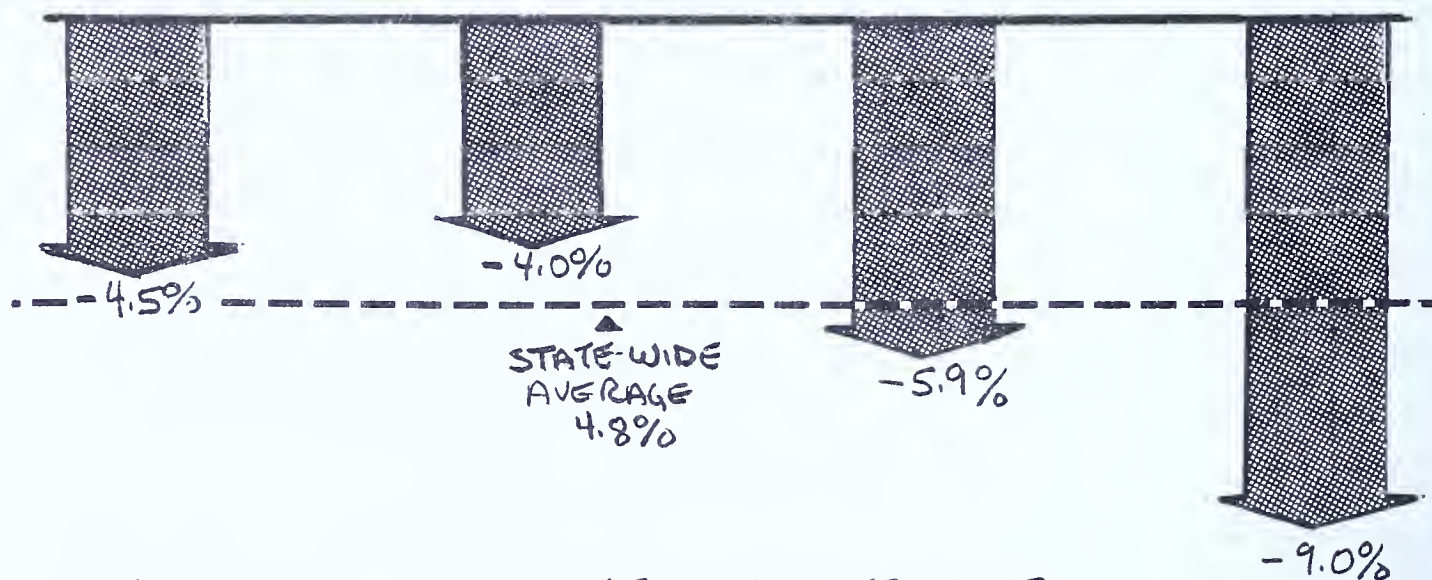
For all classes of property, assessment ratios have been falling . . .

RATIO OF ASSESSED VALUE TO MARKET VALUE

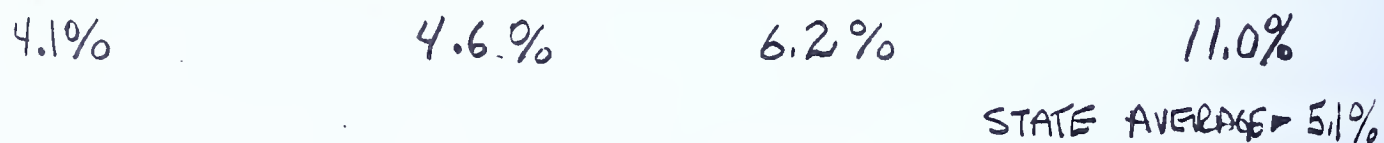


. . . With agricultural property showing fastest decline

AVERAGE ANNUAL DECLINE IN AV/MV RATIO



IMPLIED RATE OF INCREASE IN MARKET VALUE



This average rate for the whole tax base, however, does not fairly characterize any of the components of that base. Although each of the property classifications is property, they participate in entirely different markets. For example, the market for industrial property is significantly different from the market for second home vacation lots, or residential property. As a result, gains in market prices have varied substantially by property classification.

Exhibit 26 shows the level and changes in assessment ratios for each of the three major property classes, plus agricultural property between 1967 and 1971. Converting the changes in assessment ratios to average annual percentages shows that agricultural property has seen the most rapid decline in its assessment ratios, well above Statewide averages, while residential and commercial properties have shown the least decline. If the assessed value has remained more or less constant, these changes imply market values increasing from 11.0 percent a year for agricultural property to 4.1 percent a year for commercial property.

The fact that different types of property appear to be assessed differently or that they are experiencing differing growth rates in market values is masked by the aggregation of all classes of property into a single property tax base.

However, if this increase in market value had been captured in increases in assessed values, total assessed values would have risen at about 6.7 percent annually. About 2.2 percent would have been contributed by new construction, and 4.5 percent by increases in assessed values, reflecting higher market values.

Even if the market price increase figures are upwardly biased (as in the case of agricultural property), average market price increases should not be less than 4.0 percent, or increases in total assessed values not less than 6.0 percent. However, as discussed in Chapter 2, even at this rate of increase, property tax revenues would not have kept pace with the growth in expenditures of local governments in Pennsylvania.

Summary

The property tax base has been increasing about 3.00 percent annually since 1961. Most of the increase has been due to new construction, and most of the new construction is residential. New construction also accounts for the whole increase in commercial and industrial assessed values. Very little increase in assessed values is due to reassessments to keep up with market value increases. In fact, with Pennsylvania's current property tax system, it is virtually impossible for the tax base to benefit from the overall inflation of property values. Were the tax system changed (as discussed in the next chapter), the property tax base might grow at about 6.70 percent - if market value changes were fully absorbed in the tax base.

The effect of this substantial dependence on new construction for tax base increases is to render the year-to-year increase relatively unpredictable. However, even more serious is the fact that, even with a reformed system which benefited from property value inflation, property tax revenues would still grow much more slowly than local government expenditures.

NEUTRALITY AND ECONOMIC GROWTH

A tax is neutral if it does not distort business decision making, particularly capital planning. Thus, for example, corporate profits taxes are thought to be neutral because profits are viewed as being residual - left over after normal operations. Property taxes, however, are far from being neutral.

Property taxes have an impact on the location decision for both households and business. A selling point made to potential home buyers is that property taxes in a given area are low - or at least low compared to surrounding areas. Businesses calculate the difference in property taxes that they would pay at two locations as one component of their location decision. In both cases, the property tax is not a neutral factor.

In some cases, property taxes are structured to favor certain kinds of investment behavior. New York City's tax abatement program for new residential construction is credited by the City with having directly led to the start of over 10,000 new units. In this case, the lack of neutrality is deliberate and the tax takes on aspects of a government program. Property tax rate "wars" between adjacent communities, in an effort to attract business, are other, less attractive examples of this programmatic use of property taxes.

Most of the discussion of the role of property taxes in business location decision making is presented in the corporate tax report. This section, however, analyzes four other nonneutral features of the tax: the discrimination against

intensive land use; the tendency of the tax to distort investment decisions, the contribution of the tax to undermaintenance of housing; and the possible effect of the tax in inhibiting future economic growth. Each is discussed in the following sections.

Discrimination Against Intensive Land Use

Assessment ratios vary by class of property. As noted earlier, assessment ratios range from a high of 37 percent for commercial property as a class to a low of 19 percent for agricultural property. These ratios are based on sales price to assessed value data and, therefore, may be subject to some bias, particularly in the case of agricultural property. Nevertheless, the wide range in assessment ratios suggests that there are in fact biases in the assessment process that tend to favor residential property and discriminate against commercial and industrial property.

These assessment ratios are Statewide averages, however. Data for a single class of property in a single municipality show even wider ranges. For example, in one municipality in Allegheny County, assessed values to sales price ratios ranged from 28 to 68 percent for residential property alone. Ratios for commercial and industrial property in the county similarly vary - although on average these types of property bear heavier assessments. In other words, the impact of assessment practices in a specific locale are probably more important than Statewide averages in determining the degree to which one or more classes (or parcels) of property are discriminated against. Nevertheless, current

practices do show a general bias against "intensive" land uses - i.e., commercial and industrial property.

Effect on Investment Decisions

As previously discussed, the composition of the tax base varies by county. Exhibits 27, 28, and 29, following, summarize the mix of property classes in each county's assessed value base. The range for residential property is from 27 percent residential of the total for Greene County to 72 percent for Cumberland County. Perry County has the lowest percentage of industrial property (0.27 percent), while Beaver County has the highest (22.70 percent). The concentration of commercial property ranges from 4.71 percent in Forest County to 36.71 percent in Philadelphia County.

Because of the relative size of investments and variation in assessment ratios, there are strong incentives for municipalities to try to encourage commercial and industrial facilities to locate within their boundaries, as opposed to locating in neighboring jurisdictions.* An example can be shown for a municipality in Allegheny County using 1970 assessed values and rates. The property mix is predominantly residential (61.70 percent) with commercial assessed values being the second largest component of the tax base at 27.75 percent. If a new supermarket worth \$2 million were built in the town, it would raise commercial

* - Encouragement could consist of offering lower-than-appropriate assessments or simply by negotiating with individual businessmen for other beneficial services. As discussed in the previous section, on average across the state, assessments tend to discriminate against rather than encourage intensive land use. Nevertheless, in any particular jurisdiction, assessments contrary to this average tendency could exist.

The composition of the tax base
(by class of property) varies
across the State

PROPERTY CONCENTRATIONS

SOURCE MCKINSEY SURVEY OF
S.T.E.C. DATA

RESIDENTIAL

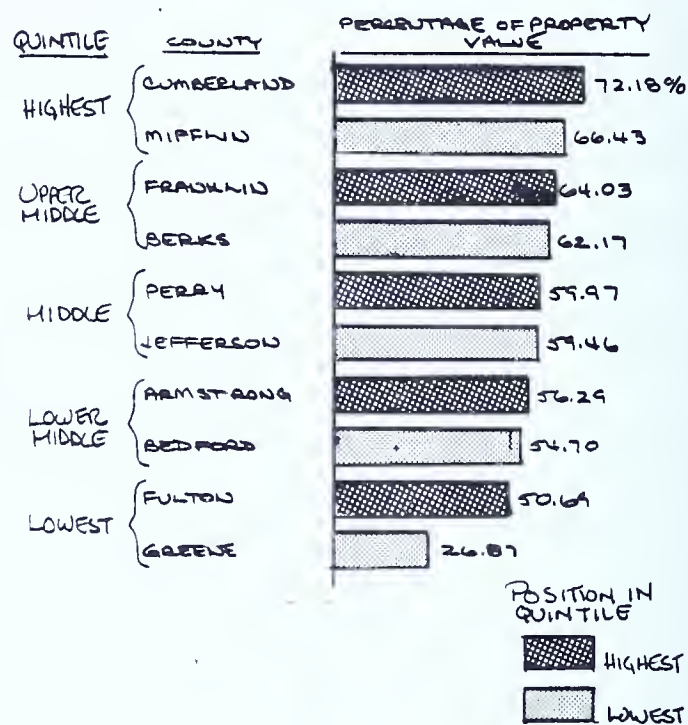


Exhibit 28

COMMERCIAL

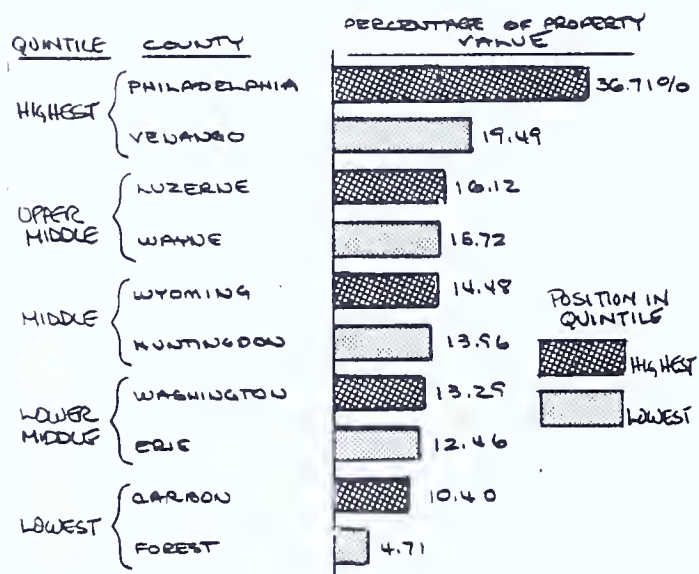
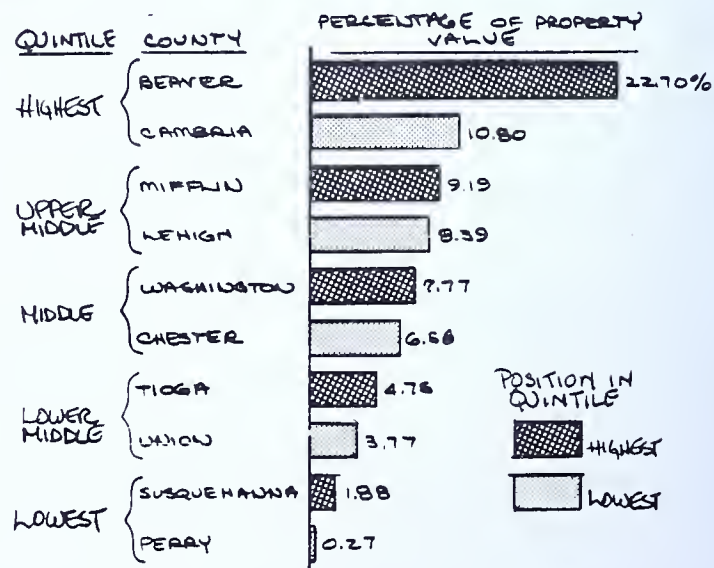


Exhibit 29

INDUSTRIAL



assessed values by about \$870,000. If the local budget remained the same, municipal tax rates could decline by 2 percent to 8.03 mills. By thus attracting additional commercial property, the locality would have been able to reduce its tax rates overall, but especially for residential property owners (or more likely avoid increasing its tax rate by a comparable amount).

Increases in property values, however, usually carry servicing costs. Thus, a supermarket might require an additional traffic light or additional garbage removal services. As long as the services required cost less than \$7,200 per year, the municipality would "make money" (in the sense of being able to lower rates for other taxpayers) - see Exhibit 30, following.

New residential construction, in contrast, requires considerable more servicing costs. Leaving aside educational costs, borne by the school district, local service costs would include street extensions, street cleaning, sewer and water extensions, and additional police and fire services. Although the marginal cost of new residential development to the municipality has not been fully assessed in any of several studies made by others, it has been shown that these costs are higher than comparable servicing costs for other property classes. Therefore, a town would seek to discourage new residential investment and encourage new commercial and industrial development.

Thus, property concentrations tend to perpetuate themselves, constituting a substantial lack of neutrality in the tax. Areas that are predominantly residential have high taxes to support the service costs associated with residential

The addition of a shopping center to a municipality's tax base would "pay off" if the additional servicing cost were less than \$7,200 a year. . . .

XXX TOWNSHIP, ALLEGHENY COUNTY

	<u>1970 Tax Base</u>	<u>Percentage Composition</u>	<u>Addition of Shopping Center</u>	<u>After Center</u>
Residential	\$ 19,414	61.70%	-	\$ 19,414
Commercial	8,732	27.75	868	9,605
Industrial	1,136	3.61	-	1,136
Lots	524	1.66	-	524
Others	<u>-</u>	<u>5.28</u>	-	<u>-</u>
Total	\$ 31,461	100.00%		\$ 32,334

Assuming a Rate Reduction

Municipal rate	<u>8.25 mills</u>	<u>8.03 mills</u>
Tax revenues	\$259,553	\$259,553

Assuming No Rate Reduction

Municipal rate	8.25 mills
Tax revenue	\$266,756
Increase in tax revenue	\$ 7,203

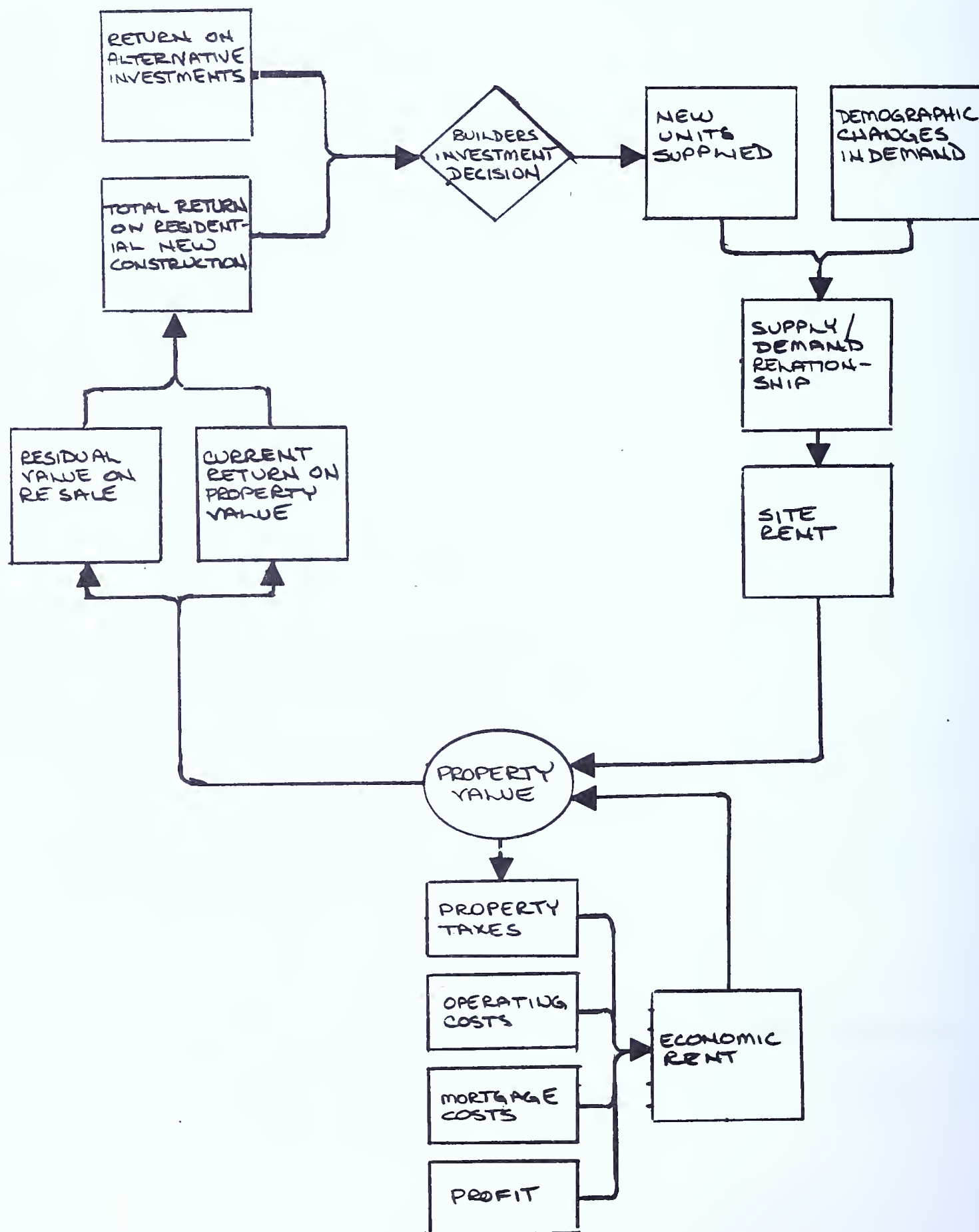
Source: McKinsey calculations.

property. These taxes tend to discourage commercial and industrial development. By contrast, areas with high proportions of industrial and commercial property have lower tax rates because overall service costs tend to be lower. Lower taxes would tend to encourage commercial and industrial development.

Contribution to Housing Decay

One of the most frequently heard arguments against property taxes is that they discourage adequate maintenance or improvement of housing. A homeowner, interested in making an addition or improvements to his house, is confronted with a twofold problem: (1) the capital cost of the desired improvement; and (2) the future cost of paying increased property taxes on his improved - and, therefore, higher value - property.

In the preceding section of this chapter, we noted that most of the natural increase in property value was not captured as an increase to the tax base (except when a general revaluation took place). In contrast, specific improvements made to homes tend to be noted immediately - because of the need to get building permits, etc. - and represent most of the revaluation portion of the tax base. Therefore, for significant home improvement, the prospect of immediate increases in property taxes is real. The effect of homeowner reluctance to incur these increased costs is difficult to quantify, but may inhibit some reinvestment in residential property. At least to the extent that the tax discourages such reinvestment, it contributes to the housing decay in the State.

SCHEMATIC OF BUILDER'S INVESTMENT DECISION

The situation in rental housing, especially in core city areas, is even more severe: The desirability of reinvesting in existing housing is directly a function of the return a landlord expects to get on his investment (the investment model of a builder/investor is schematized in Exhibit 31). As the exhibit shows, a new investment by a builder or landlord would increase two components of his operating cost - mortgage costs and property taxes. To cover these increased costs, a landlord must charge higher rents. But in decaying sections of inner cities, few people can afford the additional rents. Therefore, the return on the landlord's improvement investment is limited, at best. As a result, a typical landlord will decide not to reinvest in his existing "slum" property - but rather to seek more attractive return elsewhere. Further, this general pattern applies as much to normal "investment" in adequate maintenance, as well as to significant new investment. The net result of this vicious cycle is an acceleration of the rate of decay of the property - a result directly contributed to by the current property tax system.

Impact of
Property Tax Increases on
Future Economic Growth

Although individual localities have been able to hold property tax rates at their current levels or reduce them by various incentives to commercial and industrial development, property tax rates overall have risen. As discussed in the first

part of this report, overall effective tax rates on market values have climbed at about 4.9 percent annually. The growth rate by type of taxing jurisdiction is shown in Table 20.

Table 20

<u>Type of Jurisdiction</u>	<u>Average Annual Increase In Rates: 1961-1969</u>
Overall	4.9%
School district	6.5
County	5.4
Municipality	0.9

Source: Department of Local Affairs, Education.

At these rates of increase, the overall tax rate may increase by over 60.0 percent by 1980. School rates would increase 80.0 percent, county rates by about 75.0 percent, and municipal rates by about 8.5 percent. Thus, at current rates, property taxes could reach a level of about 5.0 percent of market value in 1980.

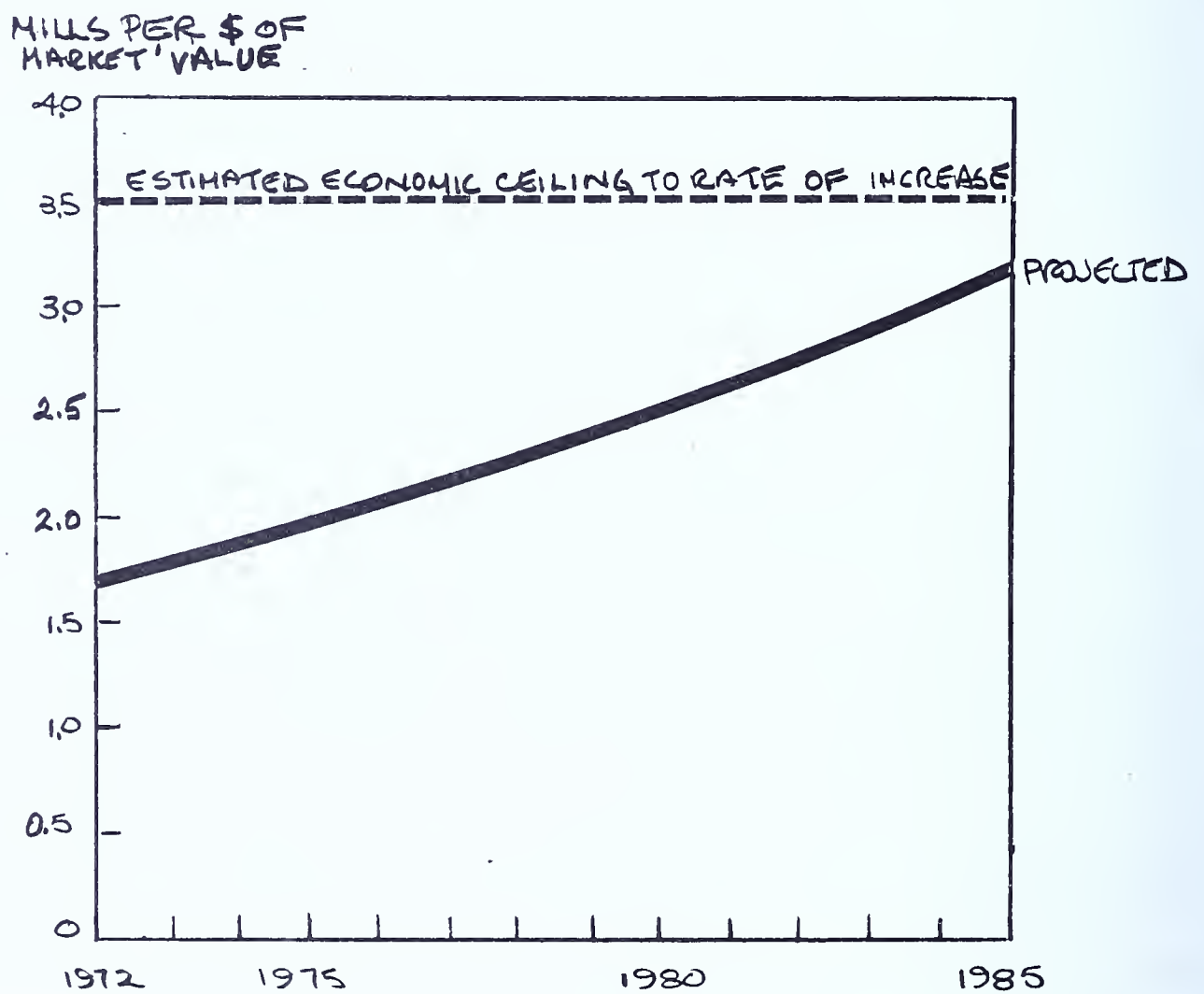
Such significant rate increases will cause both political and economic problems. The taxpayer revolt of 1970-1972 may seem mild compared with reactions from families faced with rates 60 to 80 percent higher than they are now paying. Apart from political problems, however, such rapid growth in property tax rates distorts investment and development decisions.

Property tax payments are reflected in the market value of property in an indirect way. If two parcels are equivalent in every respect except property tax payments, a buyer is willing to pay more for the property with low-tax payments than for the property with higher payments. The buyer, in addition to acquiring the property, acquires an obligation to pay a series of tax payments. High-tax payments are unattractive because they represent a continuing cost of holding the property and, therefore, reduce the price he is willing to pay. The amount by which the market value of the property is reduced would be equal to the present value of the infinite series of tax payments that the buyer would expect to pay. The present value of these payments is equal to the effective tax rate times the market value divided by the buyer's discount rate. (The buyer's discount rate represents the highest return he could achieve on alternative investments, such as 5 percent in a savings bank, 7 percent on corporate bonds, or 10 percent in the securities markets.)

Clearly, increasing tax rates with no change in market values imply a declining sales price. If market values are increasing, however, the increase in the property tax rate may only offset part of that increase. Thus, even though rates are increasing, an owner's property may be increasing in market value faster, consequently offering him the prospect of some capital gain on his investment. The investment problem caused by increasing tax rates, however, arises

Without reform, increase in property tax rates will reach 3.5 mills per dollar of market value per year

INCREMENTAL INCREASE IN TAX RATE



SOURCE: MCKINSEY CALCULATIONS

when the reduction in value due to property taxes offsets the natural increase (i. e., at a constant tax rate) in property values. *

The compound growth of property tax rates means that the year-to-year increment in tax is increasing. Although the incremental increase in effective property tax rates will not soon exceed 3.5 mills per dollar of market value the theoretical value at which disinvestment might begin to occur - Exhibit 32 shows that, without significant reform, the amount of increase will be approaching that level by the end of this decade. The consequences of this trend will be increasing distortion and disorderliness in the real estate market.

New property investment is sensitive to changes in property values. Stagnant property values would reduce the gain on resale an owner might expect. Thus, to meet his investment return objectives, an owner would have to increase his emphasis on current returns. This, in turn, would have a direct impact on rents.

* - The following formula shows that an investor might decide to buy property as long as the value of the left hand side of the equation is less than the value of the right hand side.

$$\frac{\text{Increase in rate x market value}}{\text{Buyer's discount rate}} = \frac{\text{Natural rate of increase}}{\text{x market value}}$$

Assuming a buyer's discount rate of 7 percent and a natural increase in market values of 5 percent a year leads to the conclusion that, if the annual increment in tax rates exceeds 3.5 mills, then the increasing tax obligations associated with the property would offset any expected increases in market value. At the present time, the incremental increase in tax rates is about 1.7 mills.

Whether the owner could achieve the necessary returns would depend on the market's ability and willingness to pay higher rents. Rents would be forced up to accommodate both increases in owner returns and higher property tax payments themselves. The overall price increase would force many families out of the market for new construction. As a result, the demand for and the supply of new units would both fall off.

With fewer new homes on the market, the utilization of the existing stock of housing would increase. This greater utilization would accelerate deterioration due to overuse. In addition, deterioration from lack of reinvestment, responding to many of the same pressures that shape new investment, would also accelerate.

Although the kind of widespread decay that this scenario suggests may never afflict the State, some areas have begun to show significant disinvestment in property. Housing decay is particularly prevalent in inner city areas of Pittsburgh and Philadelphia, although other areas of the State, such as Greene County, also suffered similar disinvestment phenomena. (Total assessed values in Greene County declined by \$859,000, or 1.4 percent, from 1969 to 1970.) Property tax increases are not the whole cause of the deterioration phenomenon by any means. Nevertheless, uncontrolled property tax increases clearly contribute to and exacerbate other causes of decay.

* * *

In summary, by most of the traditional criteria used by economists to evaluate taxes, Pennsylvania's current property tax system is deficient. Some of the specific problems in the tax are the following:

- ¶ The tax is regressive - it imposes a heavier burden relative to income on low-income families than on those more favorably situated.
- ¶ The tax is full of inequities: Comparing the tax burden on families in similar economic situations shows that:
 - Tax burdens vary among jurisdictions in the State
 - Tax burdens vary even within individual jurisdictions
 - Owners pay more tax than renters
 - Commercial and industrial property owners pay relatively more tax than residential property owners.
- ¶ The revenue from the tax is inelastic and cannot keep pace with the growth in expenditures of the local governments which use it.
- ¶ The tax is not neutral, contributes to housing decay, and if rate increases continue unabated, may significantly inhibit future State economic growth.

Most of these problems can be corrected through targeted reforms - as discussed in the following chapter.

5 - POLICY ALTERNATIVES FOR THE REFORM OF THE PROPERTY TAX SYSTEM

In the previous chapters of this report, we identified a number of serious problems with the property tax that warrant reform. Disparities in assessment ratios and other indexes of variations in the tax from place to place, due in large part to the significant number of overlapping districts, need to be corrected to eliminate the resultant inequities. Problems in the use of property taxes to fund local schools need to be resolved (and if the Supreme Court acts, may have to be resolved, quickly). The regressive and inequitable distribution of the burden of the tax, low elasticity, distortion of business decisions, and negative impact on existing housing quality and on future economic growth should be corrected by specifically targeted measures.

Many proposals have been advanced for the reform of the property tax. The purpose of this chapter is not to evaluate each of those proposals but to review several types of alternatives to suggest directions for more specific policy development. The alternatives reviewed in this chapter will clearly require further elaboration if they are to become legislative proposals. At this early stage in the tax reform effort, however, an overview of several alternatives should prove more useful than in-depth analysis of one or two.

Some of the major proposals that have been suggested for the reform of property taxes include the following:

- ¶ A uniform Statewide tax system: By establishing a Statewide basis for the property tax (which may be required for school financing purposes), many inequities in the current tax system could largely be overcome. In addition, a Statewide tax would be more nearly neutral with respect to plant location decisions throughout the State than the current pattern of overlapping and varying local rates.
- ¶ Reduced Statewide rates: As part of a Statewide tax program to finance local schools, property tax rates could be reduced. The additional revenue could be provided from other sources, especially anticipated new Federal aid derived from new Federal taxes. Lower and uniform Statewide rates would address much of the criticism leveled against the tax.
- ¶ Progressive rates: A progressive tax rate structure on residential property (in the context of a Statewide tax) would significantly improve the rate of growth in property tax revenues. It would also affect the incidence pattern in a favorable way.
- ¶ Frozen rates: A freeze on all property tax rates would clearly control tax rate increases. Increased need for local government revenues would have to be met from the natural growth in the tax base and from other State and Federal sources.
- ¶ Credits for the elderly: A number of credit schemes have been proposed or are in effect, usually focused on elderly households on fixed

incomes. Credits for these families would be relatively inexpensive, yet they would significantly relieve the most regressive part of the property tax burden.

- ¶ Exemptions to assessed value: In a similar vein, exempting the first \$5,000 of assessed value would improve the incidence of the tax and help contain the impact of tax rate increases for lower income families.
- ¶ Full market valuation: Imposing the tax on full market values (as determined by the State Tax Equalization Board) would significantly improve the administration of the tax. In addition, it might help improve both elasticity and neutrality and reduce the current rate of growth in the tax rate itself.

The relationship between policy options and property tax problems is presented schematically in Exhibit 33, following. For convenience in the following discussion of these options, the options themselves will be grouped into three categories: Statewide tax options, credit and exemption options, and administrative options. A number of variations, with respect to each, are possible as are other options not discussed in this report. This preliminary discussion is only intended to suggest the range of alternatives and the scope of their impact.

Our review of these options suggests a number of conclusions about the direction property tax reform might take in the Commonwealth. These conclusions are, at this point, highly tentative. Further, they reflect observations about the meaning of different reform options - but not the input of State

RELATIONSHIP BETWEEN POLICY OPTIONS AND
PROPERTY TAX PROBLEMS

IMPACT



PRIMARY



SECONDARY

LITTLE OR
NONE

PROBLEM FOCUS		EQUITABLE SCHOOL FUNDING	CONTROL OF RATE INCREASES	IMPROVED INCIDENCE PATTERNS	INCREASED NEUTRALITY IN BUSINESS DECISIONS	IMPROVED ELASTICITY	IMPROVED ADMINISTRATION
POLICY OPTION							
STATEWIDE TAX	STATEWIDE TAX RATE	PRIMARY	SECONDARY		SECONDARY		
	REDUCED STATEWIDE RATES	PRIMARY	SECONDARY	SECONDARY			
	PROGRESSIVE RATES			SECONDARY		PRIMARY	
	FROZEN RATES		PRIMARY				
CREDITS AND EXEMPTIONS	CREDITS FOR ELDERLY			PRIMARY			
	EXEMPTIONS TO ASSESSED VALUE			PRIMARY			
ADMINISTRATION	FULL MARKET VALUATION		SECONDARY		SECONDARY	SECONDARY	PRIMARY

policymakers as to the desirability of the different options or the priority which should be assigned to solving some of the problems in the current tax system. These conclusions about the nature of the tax options discussed - offered as input to the deliberations of policymakers, not to preclude serious considerations of any of the options evaluated below - are:

- ¶ Reform designed to correct inequities in the current system probably implies a larger State role in the property tax system: Both the inequity of using local property taxes to fund education and the inequities resulting from differing administrative practices result from the local nature of the current tax system. Any reform designed to mitigate or eliminate these inequities implies State subvention of what are currently local prerogatives. For example, solution of the school funding inequity requires some form of uniform State taxation. Improved administration also implies State intervention in what is currently a local area of responsibility. Early recognition of this prerequisite for reform may clarify further discussion of the specific types of reform which might be considered.
- ¶ State intervention can be achieved without complete State takeover of all local functions: Despite the fact that significant reform may require direct State intervention in the current tax system, this intervention does not necessarily imply complete State takeover of all local functions. For example, administration could be improved by the

imposition of a workable set of administrative and assessment standards - even though assessments were still done at the local level.

A uniform State tax rate could be imposed on equalized full market value - with little or no change in current administrative practices.

In summary, direct State intervention in the current system may not imply a drastic overhaul of existing procedures.

¶ State intervention can best be achieved on the basis of a set of uniform assessment practices - possibly implying assessment at full market value: Any attempt to achieve State intervention without standardization of assessment practices would further complicate an already complicated tax. The simplest and most direct means of achieving standardization is through adoption of uniform full market value assessment procedures - with taxes based on only a uniform fraction of this assessed value.

¶ If State intervention in the current system is to be undertaken, then a whole range of other reform options is feasible: Progressive rates, self-assessment procedures, credits, and exemptions are all possible reforms if the State is to intervene in the current localized system. Alternatively, few of these options make sense if the current, highly fragmented system is going to be perpetuated. Therefore, these other options should only be considered if a decision is made to interject the State directly into the workings of the current system.

The detailed discussion below of possible reforms to consider reinforces these conclusions.

SCHOOL FUNDING AND STATEWIDE RATES

Statewide property tax rates have been proposed as a way to separate school funding from the wealth of the school district. Counties could retain their assessment responsibilities. The State, however, would determine market values in each school district and set a uniform tax rate. Tax payments would be made to the State and reallocated to local school districts in terms of need, not wealth. In a similar way, Statewide tax rates could be used to finance certain functions of county and municipal governments. Presumably, some rate-setting mechanism would be specified to control the increase in the State-determined tax rate.

This Statewide tax system would open the way for several related reforms. For example, property tax rates for education could be reduced and the necessary additional revenue supplied from other State or Federal sources. Tax rates on residential property could be made progressive, depending on the value of the dwelling unit. Or property tax rates could be frozen and increased revenues required for local governments could be raised from other State or Federal sources.

In addition, a Statewide tax system should have a direct impact on the increases in property tax rates. Setting tax rates at the level of the State legislature or in some other equally accessible forum would focus public debate on the need for rate increases and desirability of productivity gains in government

to offset the need for higher taxes. In addition, an appropriate mechanism for limiting rate increases could ensure that the growth in the property tax for education or other program purposes would be contained. Containment of property tax rate increases will be an important feature of a tax reform program that will recommend itself highly to the citizens of the State.

A number of specific reform alternatives - each involving uniform Statewide rates, are discussed below. Each option is reviewed in terms of its basic characteristics, its relationship to tax problems, and its overall impact.

Uniform Statewide
Tax Rates for Education

One direct approach to resolving the school funding issue might involve substituting a uniform Statewide school property tax for the current system of local school district taxes. The Statewide tax rate necessary to raise the same amount of funds Statewide, as the sum of the amounts raised locally, can be calculated as the weighted average of all the educational tax rates in the State. Based on data for school districts, as reported by the STEB and the Bureau of Industrial Development, the Statewide education tax rate would be 19.5 mills per dollar of market value. When this tax rate is applied to the total tax base, about \$768,000 less (.03 percent) than the total of current, locally administered property tax revenues would be collected - an amount that could be made up from other State revenue sources.

(The Statewide tax rate, of course, would be only half of the required reform package. The distribution of funds that the State would receive under this

approach would demand a sophisticated allocation formula, accounting for such indexes of need as the standard cost of educating a child in each district, the number of children and their achievement profile, and the support the district was receiving from other sources. In this report, however, we focus only on the tax portion of the reform package.)

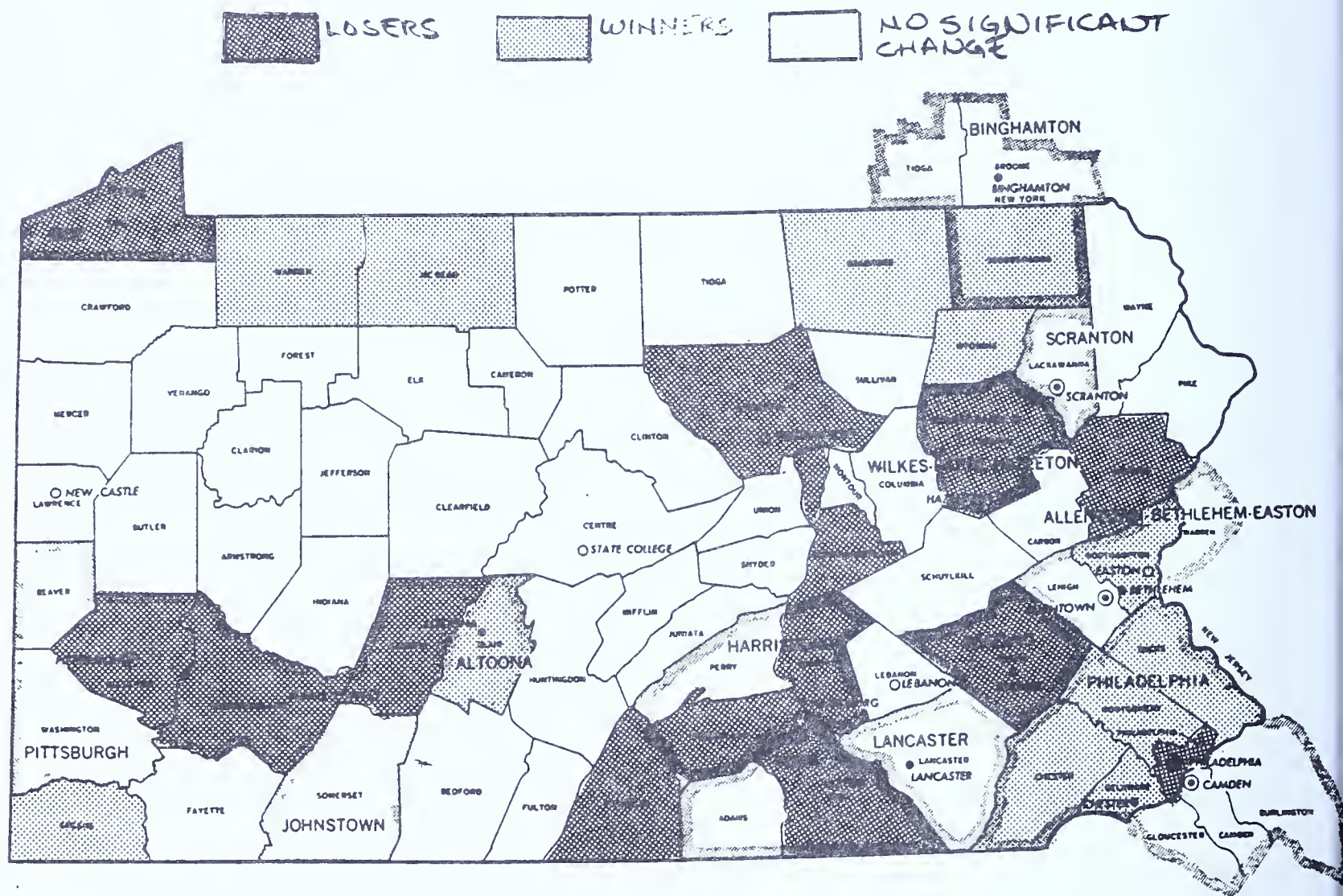
The incidence of the uniform tax would not differ from the incidence of the current tax system - described in the previous chapter. In other words, the substitution of uniform Statewide rates for education would result in no direct reduction in tax burden for an average taxpayer in the State. However, some counties have average school district rates above the uniform rate for school purposes, while others are below it. Those taxing above it would find their tax rates lowered and their tax burdens reduced - they would "win" from a Statewide tax proposal. Others would find their rates and burdens increased - they would "lose" from such a reform. Exhibit 34, following, shows that many of the State's larger counties would be able to reduce their school tax rates (on average, by 1.7 percent), while some rural and declining areas would be forced to raise theirs (on average, by 3.2 percent). The winner/loser view, however, does not reflect the impact of a sophisticated State aid allocation formula - which might significantly change the relationship among counties suggested by a simplistic comparison of changes in effective tax rates.

A Statewide tax would repair much of the disparity in effective tax rates among taxing districts - thus addressing a key problem in the equity of the tax.

With a uniform State tax rate . . .

. . . Larger counties would pay lower rates . . .

. . . Rural and declining counties would pay higher rates



Property owners in each school district would pay the same tax for school purposes. In addition, because the school tax is such a large component of property taxes Statewide, overall variations in total property taxes by locale would be reduced.

By enhancing the equity of the tax among localities, the Statewide tax would also increase property tax neutrality. All property would be taxed alike in every location, at least for educational purposes. Given the limited range of variation observed in municipal and county rates, it would be more difficult for units of local government to create or sustain particularly advantageous "tax havens." Thus, property tax location incentives established by county or municipal officials would be constrained, contributing to a more nearly neutral tax with respect to investment and locational decision making.

Lower Statewide Rates For Education

A Statewide rate would not have to be set at exactly the average tax rate for education purposes. If it were set lower than the current average rate, the role of property tax revenues per se would be reduced and the number of winners (or those areas where tax rate reductions would be possible) would increase. The difference between the amount required and the amount raised could be funded by increases in other taxes, such as the personal income tax. Alternatively, new Federal assistance could be sought to reduce the role of property tax revenues in financing school budgets.

The most attractive feature of this option would be an overall reduction in Statewide property tax rates. The amount of rate reduction could range from modest to large, depending on the availability of money from other sources as alternative funding mechanisms. Rate reductions should be reflected in higher property values, reversing the trends discussed in Chapter 4. These unanticipated gains would certainly be a bonus to individual property owners and a further political selling point.

The adoption of a lower Statewide rate would also have an effect on the incidence of the tax, in two ways: First, the overall property tax burden would be reduced in proportion to the amount of reduction in property tax rates. If tax rates were reduced by 10 percent, for example, relative incidence ratios across all income groups would remain about the same but the incidence for each group would decline.

Second, the pattern of overall tax incidence (for all taxes: personal income, property, corporate, and sales) might be improved by shifting some funding from the property tax to another more progressive tax option. In particular, if some of the property tax burden were shifted to a progressive income tax, the total incidence would improve significantly - even though the remaining property tax itself would still be regressive.

Statewide Rates for Education Frozen at Current Levels

In the context of a uniform Statewide property tax for education, property tax rates could be frozen to eliminate future pressure for tax rate increases.

Additional funding needs in the future could be met by the State from nonproperty tax sources and allocated among local governments on the basis of need. This option would resolve the school funding issue and, at the same time, allay public fears about uncontrolled future rate increases.

Freezing property tax rates would have both constructive and negative effects. On the constructive side, frozen rates would halt seemingly uncontrolled rate increases. At the same time, it would force increasing reliance on other taxes that would begin to shift total incidence of all taxes away from the regressive pattern characterizing property taxes to a more progressive pattern such as could characterize a progressive personal income tax. On the other hand, the change in total incidence would be relatively slow - thus perpetuating the current, regressive incidence pattern for some time.

Overall, effective property tax rates have been increasing at about 4.90 percent a year, and the property tax base has been growing at about 3.00 percent annually. If further increases in the property tax were prohibited, property tax revenues would still grow at about 2.95 percent - reflecting the growth in the base. If the rate of growth of the revenues generated by base and rate increases represents the real growth in need for additional funds, then, overall, funds have been growing at about 8.00 percent. Since only about 3.00 percent of this growth would be supplied by future increases in the property tax base, an additional 5.00 percent would be required from other sources to eliminate the need for increases in rates. With rates frozen at their 1970 levels, this would have meant

finding about \$76 million in revenues from other funding sources in 1971. An 8.00 percent increase in either income tax revenues or sales tax revenues would have met this requirement.

Alternatively, growth in the property tax base could be used to force rates downward. Constant property tax rates and an expanding base would generate an increasing amount of property tax revenue. The revenue from property taxes could be held constant in the face of an expanding base by gradually reducing rates. If the tax base were growing at 3.00 percent annually, then each year's rate could be 97.00 percent of the previous year's rate.

If this approach had been chosen in 1970, then effective rates of 31.7 mills in 1970 would have become 30.7 mills Statewide in 1971. To make up for the shortfall in revenues collected from property tax, an additional \$141 million from other sources would have been required. This amount could have been raised by an increase in income or sales tax revenues amounting to about 13 percent.

Progressive Rates

A progressive property tax rate structure tied to the market value of the property is a fourth rate-related policy option in the context of a Statewide property tax levy. The tax rates could be determined at the State level, although assessing responsibility could be left with the counties. Tax collections, however, would be passed through the State and returned to units of local government by allocation formulas. (Progressive property tax rates are conceivably possible at the level of local government if the State chose not to take a central role in

rate setting and reallocation. The primary benefit from this initiative, however, lies in the uniformity of the tax Statewide. A myriad of local progressive rate structures would be an unwelcome further complication to an already complex structure.)

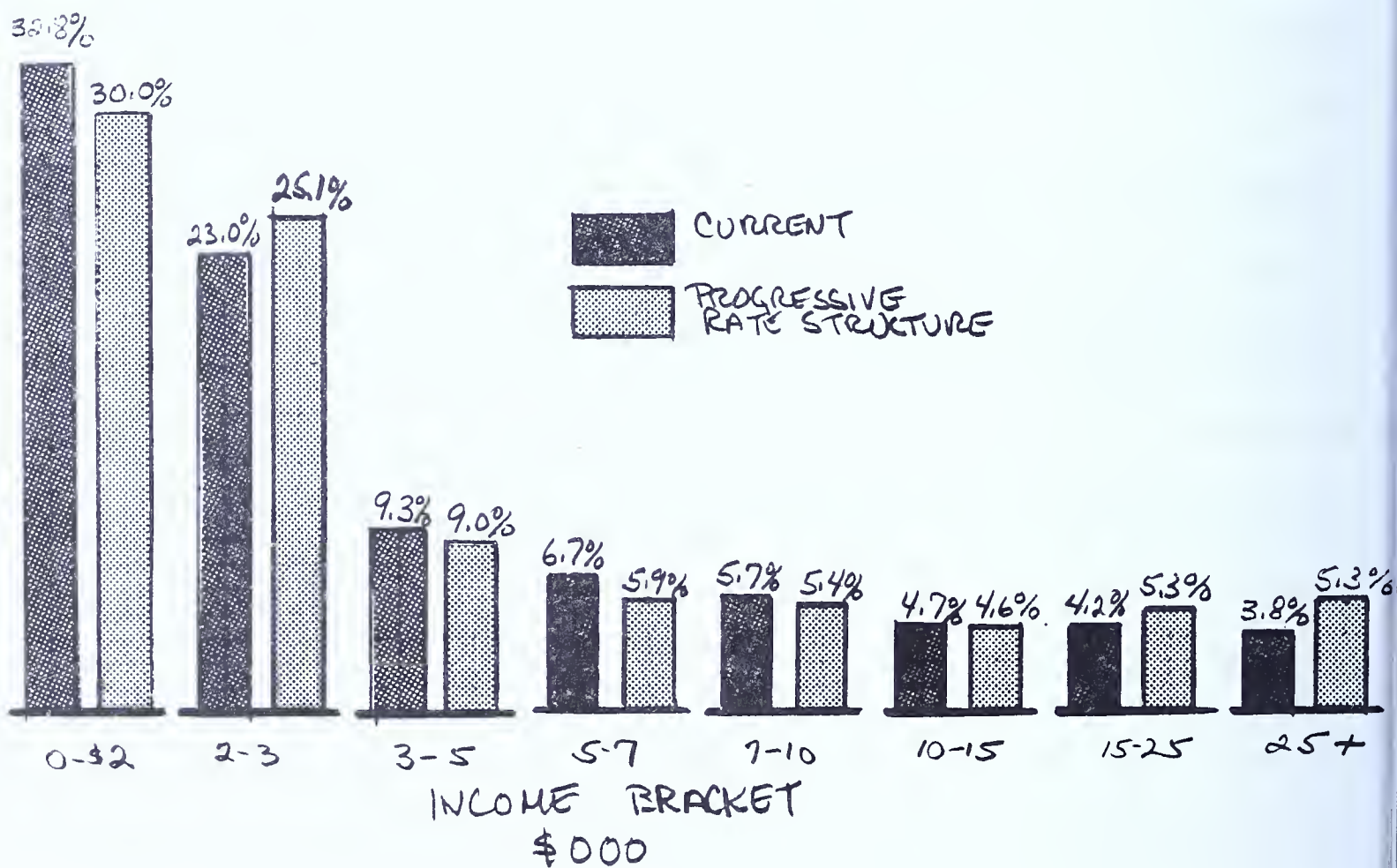
A system of progressive rates would improve the incidence of property taxes. As the analysis of the incidence of residential property taxes demonstrated, the property tax is regressive for households below the \$10,000 per year income bracket and roughly proportional above that point. A progressive rate structure could reduce the tax burden on families below the \$10,000 bracket, shifting it to families above that cutoff point, by taxing property owned or rented by lower income families at a lower rate than the property of higher income families. Depending on the rate structure chosen, a progressive property tax could have a range of effects on the incidence pattern, from softening the regressivity of the tax, to making it more nearly proportional, to achieving a measure of progressivity.

For example, a progressive rate structure could consist of only two brackets: one for houses with market values less than \$20,000 and a second for houses with market values above that amount. Based on the rule of thumb that a household can buy a unit worth 2.5 times its income, the breakpoint should occur around \$8,000 per year in income terms. With this rate structure, the tax rates required to yield the same revenue as was collected in 1970 by a uniform rate are 25 mills per dollar of market value for units with market values less than

A progressive rate structure improves property tax incidence

AVERAGE PROPERTY TAX PAYMENTS
AS A % OF MEDIUM FEDERAL
TAXABLE INCOME BY INCOME
BRACKET

(LOWER OCCUPIED UNITS ONLY)



\$20,000 and 50 mills per dollar of market value for units \$20,000 and above.

The incidence of this rate structure is significantly improved over the incidence pattern of the present property tax. Exhibit 35, which compares these two incidence patterns, demonstrates that this possible restructuring of the tax ameliorates substantially its overall incidence.

The fact that higher valued properties are taxed at higher rates would have beneficial implications for the elasticity of the property tax, too. In general, the relative newness of a house is a rough proxy for its value. In particular, it is almost impossible now to build a single-family house for less than \$20,000, so that under the 2-level rate structure, all new construction would be taxed at the higher rate. As the analysis of the components of change in the assessed value base demonstrated, new construction is the key contributor to the growth of the property tax base. Under a progressive rate structure, revenues would increase faster than the growth in the base because of the somewhat higher tax on new construction. Specifically, if all new construction were taxed at the higher rate, then the total growth in revenues would have been \$37.2 million, or 4.5 percent, in 1971 - compared to the \$33.0 million, or 4 percent, actually realized.

Given that revenues would grow faster than increases in the base for a given rate structure, there would be less pressure on tax rates per se. Depending on the progressivity of the tax structure and the definition of property value brackets, the rate of growth of tax revenues for a given tax structure could be tailored to the growth rate.

Progressive rates, however, would have a negative effect on the neutrality of the property tax. Because higher valued properties would be taxed at a higher rate and because the building of new property is expensive, all new construction would tend to be taxed more heavily than the existing stock of residential, commercial, and industrial property. In general, this should increase the utilization of existing property and provide disincentives for the construction of new property. In residential property, incentives for the maintenance and increased utilization of existing housing would be fundamentally desirable. But overall disincentives to new construction might tend to dampen economic activity and constrict economic growth.

CREDITS AND EXEMPTIONS

One approach to remedying the regressive impact of the property tax is to provide targeted credits or across-the-board exemptions to the tax. By using appropriately targeted credits, the State could build into the tax a reasonably progressive structure. Across-the-board exemptions are less specific in their impact, yet still useful as part of an effort to ameliorate some of the more glaring defects of the tax.

This section evaluates one example of each option type. To simulate the effect of exempting all elderly households, the first option involves removing all 1-person households from the tax base. Because the elderly poor are predominantly single-person households, this approach provides a reasonable first approximation of the impact of this kind of reform. To test the effect of

across-the-board exemptions, the first \$5,000 of assessed value (based on a full market value tax system) for all property owners is exempted under the second option. Because poorer families have lower valued property than higher income families, the percentage tax reduction for these families is greater. Thus, this option ameliorates the regressive impact of the tax while "giving something to everyone."

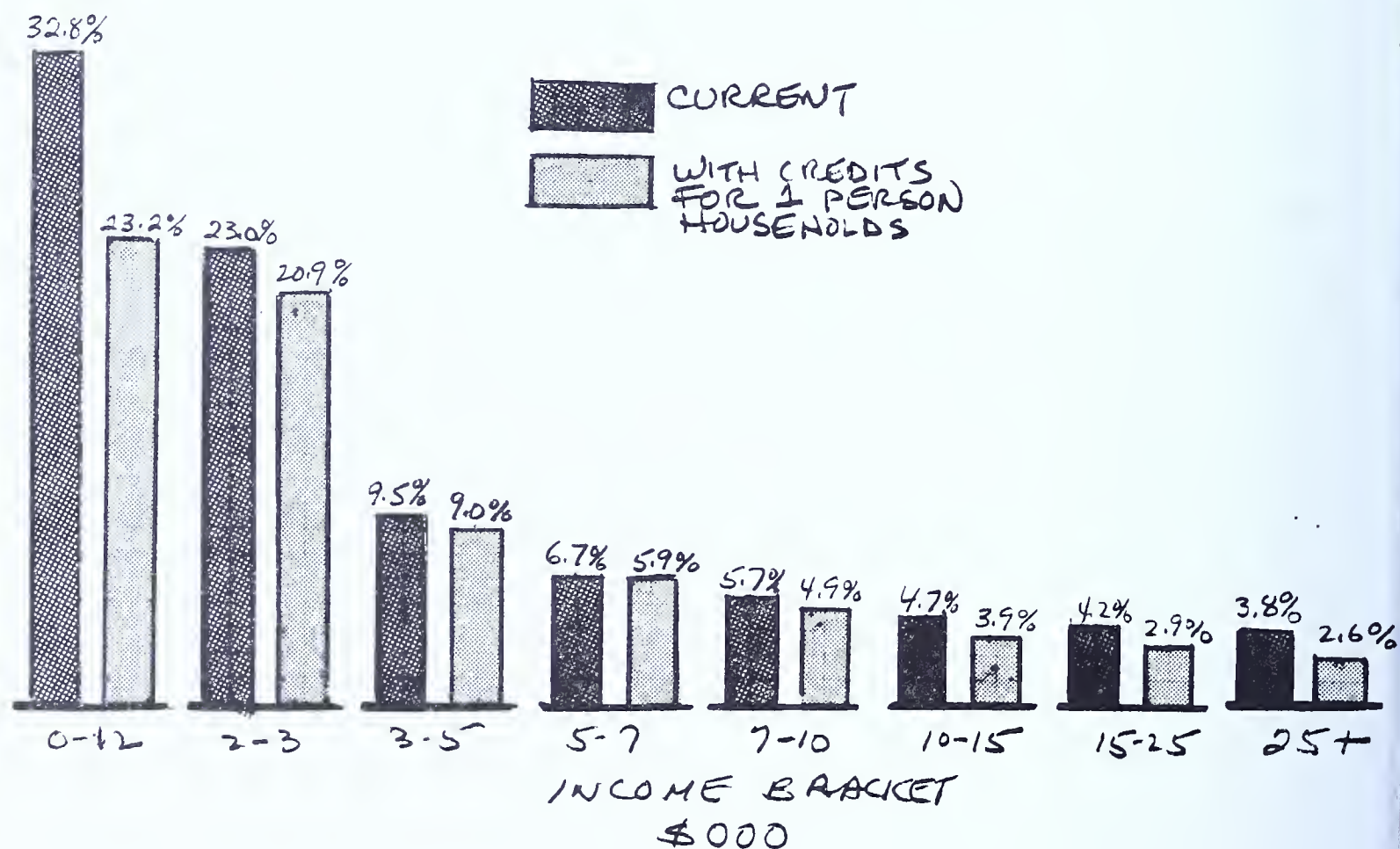
Credits

Credits could be used to offset the regressive burden of property taxes on certain classes of taxpayers under virtually any property tax system. For example, under the current system, credits could be established by the State and administered either at the State level - through the personal income tax - or at the local level. The administration and collection of the property tax could remain a local responsibility. Local units could document their claims for reimbursement for revenues lost due to these credits and submit them to the State for payment. Alternatively, property taxes overall could be raised to offset revenues lost from these credits. Similarly, credits could be designed as part of a Statewide tax system.

The design of the credit system could vary significantly. For example, all 1-person households - a proxy for the elderly, since many of the elderly live alone - could receive full or partial credit for property taxes paid. A further refinement would target credits only to elderly households. An elaboration of this approach would provide full credits for elderly households up to a certain

Credits for one-person households improve property tax incidence for homeowners

AVERAGE PROPERTY TAX PAYMENTS AS A %
OF MEDIAN FEDERAL TAXABLE INCOME BY
INCOME BRACKET
(OWNER OCCUPIED UNITS ONLY)



income level and a partial exemption for elderly households above that level. (However, an overly complicated credit scheme might be counterproductive: The complexity of the scheme itself might prevent qualifying households from applying for the credit.)

To evaluate the impact of credits for special groups, we analyzed the impact of forgiving all property tax payments for 1-person households. Overall, 1-person households account for about 13 percent of the number of renter- and owner-occupied households in the State.

Providing 100 percent tax credits to these households (which clearly subsidizes some households that may not need assistance) has a modest effect on both revenue and the incidence patterns for owners and renters. Exhibit 36 compares the incidence pattern for owners, before and after a 1-person household credit. The total loss in revenue from this scheme would be \$121.6 million - from a base of \$2.0 billion. Alternatively, the loss of revenue could be made up by increasing property tax rates for other households by about 2.3 mills.

In summary, credits can be designed to correct virtually any inequity in the tax and, in particular, to improve the tax's overall incidence pattern. Choosing which types of credits to implement is basically a policy choice for State decision makers.

Exemptions

Exemptions from the property tax base are another type of reform option focused primarily on incidence or equity problems. Tax-exempt property, in

the current tax system, represents one type of exemption program. Another example might involve having the State decide to exempt a fixed portion of the tax base for all taxpayers - e. g., the first \$5,000 of assessed value. With this option, tax administration could still be the responsibility of local governments. Documented claims for reimbursement from the State could be entertained as one approach to financing an exemption; alternatively, local governments could self-finance exemptions by raising rates on the rest of the tax base.

Exemption schemes focused on changes in the property tax base would have beneficial impacts on the incidence of the tax overall but little effect on other tax characteristics. For example, if taxes on certain kinds of property (supermarkets, for example) were thought to be more regressive than the tax generally exempting that property from the base would improve the overall incidence of the tax. Because such an exemption would apply across-the-board, it would be more costly than targeted credits. However, the primary result of the exemption would be an increase in property tax rates on other property in order to compensate for lost revenues - under self-financing approaches or an increase in the rates of other taxes.

To exemplify the impact of exemption schemes, we calculated tax yield and incidence for an exemption on the first \$5,000 of assessed value applied to all homeowners. Such an exemption may be desirable because, in general, low-income families own units of modest value. Exempting the first \$5,000 of

assessed value, therefore, would have a proportionately greater effect on low-value properties than on higher valued properties, thus providing greater benefit to lower income families.

As Exhibit 37, following, shows, this exemption approach dramatically improves the incidence of the tax. Overall, there are reductions in the tax burden in each income bracket - assuming no overall increase in rates to offset lost revenue. More importantly, however, lower income brackets receive reductions of almost 40 percent, while upper income brackets are reduced only 20 percent. Thus, the exemption approach reduces the incidence of the tax for all income groups and improves the regressivity significantly for lower income groups.

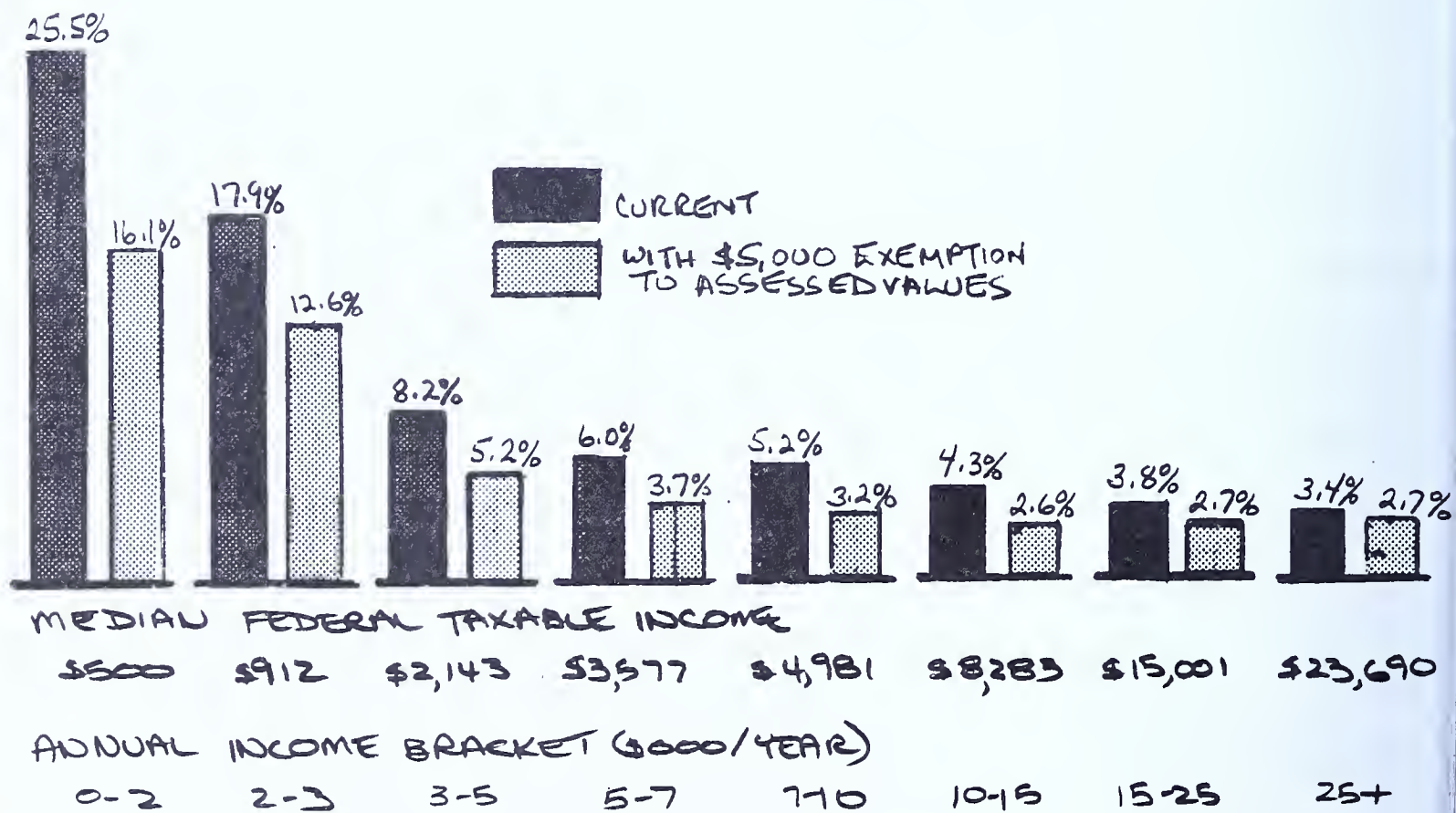
The revenue loss from owner taxpayers alone because of exemptions from their assessed values would amount to \$605 million - on a base of \$2 billion. If property tax rates overall were raised to finance these exemptions, an increase in the tax rate of about 15 mills per dollar of market value would be required. The increase in tax rates could be as low as 11 mills if all property shared the cost of these lost revenues. The size of the loss, however, suggests that targeted credits are less costly than across-the-board exemptions and are more focused in their effect.

ADMINISTRATION

Although not a focus of this preliminary review of property taxes, opportunities for administrative reform are plainly apparent. The proliferation of

Exempting the first \$5,000 of assessed property value significantly improves the incidence of the tax

AVERAGE PROPERTY TAX PAYMENTS AS A % OF
MEDIAN FEDERAL TAXABLE INCOME
BY INCOME BRACKET
(ALL UNITS)



taxing and assessing units introduces a significant lack of consistency and uniformity into the tax, accentuating its worst characteristics. The small size of these units prevents any significant specialization in assessment practices - particularly for nonresidential property. The lack of reasonable ground rules for local governments leads to "tax rate wars" between localities in a self-destructive effort to attract high-tax-paying property.

Almost any administrative reform must spell a larger role for the State. State government could set rate limits based on market values to control spending and debt levels and influence rate differentiations. The State could also intervene in a number of ways in the assessment process to improve the quality of assessments and reduce variations.

This section of the report focuses primarily on taxation at full equalized (market) value. This initiative would involve the State in the assessment process by requiring that the tax rates be stated in terms of equalized value, not assessed values. In addition, it should help remove some of the opportunity for inequity in the tax by offsetting different assessment ratios for different classes of property. Then, a number of other alternatives for State action to improve the administration of the tax are briefly reviewed following the discussion of a tax on full market value.

Taxing Equalized Values

Under the current property tax system, property is assessed by county assessors. The assessed value base is then available to units of local government

to tax consistent with their charters. Because of the difficulties of uniformly assessing properties, assessment ratios have varied significantly. As a result, considerable inequity is built into the property tax base.

Taxing equalized values is one way to attack this problem. County assessors would still determine the assessed value of property in their jurisdiction. The State, however, through procedures like those now employed by the State Tax Equalization Board, would determine the market value and assessment ratios applicable to property in that district. (STEB procedures were reviewed in Chapter 2.) An estimate of market values in that district would then be determined by dividing assessed values in each property class by the appropriate assessment ratio. This estimated market value, which is an equalized assessed value because the effects of varying assessment ratios by class of property and among counties are largely removed, would be the basis for local taxes. Assessment ratios for each county by class of property could be prepared and circulated with time to permit appeals and reexaminations. This process would largely duplicate the current role of the STEB in the allocation of State aid to school districts.

The major impact of imposing property taxes on full equalized (market) value would be the elimination of some of the inequities in the current tax system. The types of inequities involved have been discussed in detail in this report. For example, the discussion in Chapter 2 (summarized in Exhibits 13, 14, and 15) suggested the extent to which apparent variations in tax rates can be reduced by

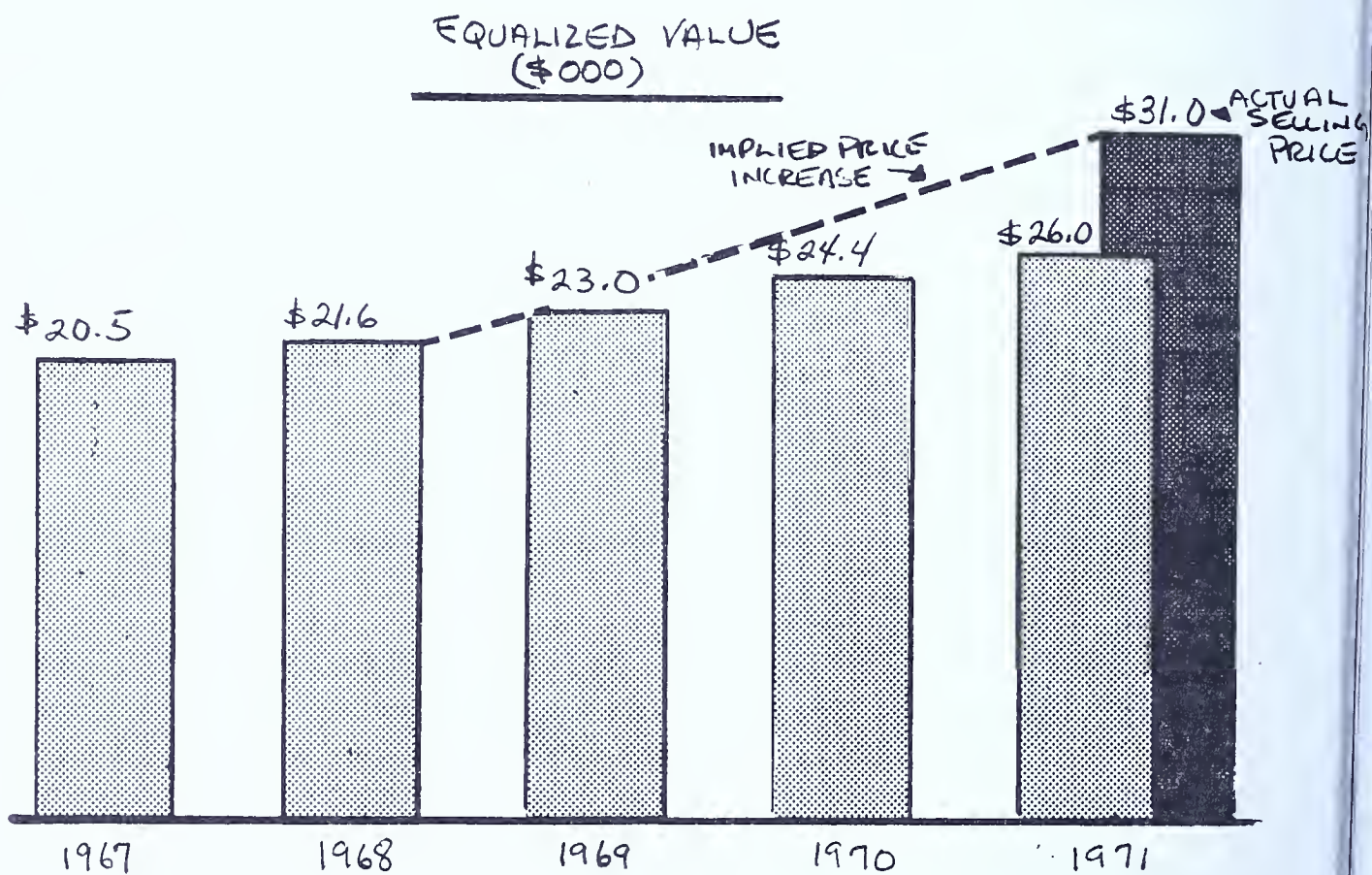
going to effective rates on equalized value. Reiteration of these advantages, here, would not add to the discussion in these earlier chapters except to underscore that such a change would simplify the tax system enormously and, in a Statewide system, lay the basis for many other reforms.

In addition to these benefits, in a tax system based on full equalized value, the rate of revenue growth would be increased. With the current system, the rate of growth of current assessed values is about 3 percent a year - due almost entirely to new construction of residential property. On average, however, property values on existing property appear to be increasing at about 5 percent a year. If both new construction and appreciation increases in the tax base were captured, the overall rate of growth would approach 8 percent. This rate of growth in the base would greatly reduce the need for rate increases.

To ensure that taxing jurisdictions benefited from market value increases, an additional provision of this reform might include a form of self-assessment that taxed the difference between the sales price and the equalized value of a property - at the time of sale. The additional tax could be imposed at the time of the sale in terms of "implied back payments due." Payment of the tax would be required to obtain clear title to the property. Presumably, either the buyer or the seller could settle this obligation.

Exhibit 38, following, illustrates an approach to capturing these increases. If a house sold for \$31,000 in 1971, when its equalized value was \$26,000, the owner would have obtained a premium of \$5,000. Allocating the price increase over 3 years suggests that the premium in 1969 was \$3,400 and in 1970, \$3,800.

Sales prices in excess of market values could be taxed to recover unrecorded price appreciation



EFFECTIVE TAX RATE		.027	.029	.031
ALLOCATED APPRECIATION		26.4	28.2	31.0
IMPLIED PRICE INCREASE		3.4	3.8	5.0
"IMPLIED BACK TAXES DUE"		\$ 92	\$ 110	\$ 155
TOTAL				\$ 357

Taxing each of these premiums at the rates then applicable (assumed to be 27, 29, and 31 mills) leads to a total "implied back taxes due" of \$357. Clear title to the property could not be obtained without payment of this amount. Of course, a rebate provision would be required to cover the situation where full equalized value exceeded the actual sales price.

The financial impact of this provision, in terms of new revenues generated for the State, is difficult to estimate. It would create a reasonable incentive to property owners to keep their assessments accurate. In addition, since price appreciation in real property is often the result of public improvements (such as better transportation, improved street lighting, or more frequent sanitation services), the State would participate in the increased values that its investments create.

Other Administrative Options

There are number of other options that might be considered in addition to taxing equalized values. The range of roles open to the State is large:

- ¶ State licensing of assessors: State law could be changed so that all assessors in the State would have to qualify for their positions by successfully completing a State-sponsored seminar in property appraisal. Refresher seminars and more advanced work could be required for pay increases or license renewals.
- ¶ State consulting to local assessment boards: The State could hire and maintain a small staff of experienced appraisers and assessors to consult with local governments on difficult properties. In particular,

the State's team might emphasize competence in industrial and commercial property. In order to encourage governments to utilize their services, the State might provide the assistance at no cost to local government.

¶ State review and evaluation of assessments: Assessment practices of local governments could be reviewed periodically and tested against standard criteria (e.g., dispersion ratios - for properties in the same class - and variations in assessment ratios among classes).

The State might then instruct the assessor's office to correct particularly flagrant problems or undertake their correction itself.

The appropriate State agency to implement a State role in improving property tax administration would probably be the State Tax Equalization Board. The Board already undertakes a number of studies and activities that could be focused on improved administration (such as its equalization work for the Department of Education). With additional staff, it could be the base for other State activities such as those described above.

* * *

The reforms discussed in this chapter are intended to suggest the wide range of reform options available to State officials and members of the Tax Reform Committee. By most traditional criteria, the property tax is deficient. The revenues raised by the tax, however, make it indispensable to local governments as a major financial resource. Therefore, initiatives by the State designed to alleviate the tax's major shortcomings are probably appropriate.

The primary focus of property tax reform should be on school funding and equity problems. Various Statewide taxes for funding education could be designed - relying on allocation formulas to redistribute the money to localities on the basis of need. In addition, specific credits could be targeted to those groups most heavily burdened by the property tax, especially the elderly poor. Across-the-board exemptions would also provide relief to the poor while providing some relief to everyone. Improved administration by developing a State role in guiding the assessment and rate-setting process would be an important complement to these two initiatives.

There are thus a number of directions that the State could take in reforming property taxes. The design of specific proposals will require selecting a general approach, developing and evaluating options within that approach, and elaborating one or two of the most promising options as key proposals for State tax reform. This report represents a first step on this agenda.

ESTIMATING THE DISTRIBUTION
OF HOUSEHOLDS BY INCOME, HOUSEHOLD
SIZE AND RENT OR HOUSE VALUE

The purpose of this appendix is to describe the methodology that was used to develop matrices that in turn were used in the analysis of the incidence of property taxes in Pennsylvania and the evaluation of alternative tax structures. The process we used to develop these matrices and the assumptions that are inherent in the process are both quite complex. Both are described in detail below. Specifically, the appendix:

- ¶ Describes the data required for incidence calculations
- ¶ Discusses the shortcomings of available data
- ¶ Reviews our approach
- ¶ Identifies explicitly assumptions used in that approach
- ¶ Reviews programs used in processing the data.

DATA REQUIREMENTS
FOR INCIDENCE ANALYSIS

Most incidence calculations that are in the literature are based on the relationships between rent or house value and household income. Thus, for example, Netzer develops his discussion of incidence on the basis of special cross tabulations of Census data relating taxes paid to income. His analysis, however, does not deal with the affects of household size which further complicates the incidence patterns that are usually discussed. Since, a priori, one

would not expect different size households to bear the same tax burden, a complete discussion of the incidence of property taxes would take this additional factor into account.

One would not expect that different household sizes would be paying the same property taxes, if for no other reason than that large families would tend to have larger houses with higher assessed values and therefore greater property taxes. In addition, one would not expect that all households of a given household size would be paying the same property taxes. Within a given household size, significant variations in the property taxes paid by house value and income class could be expected. As house values increase, property taxes should increase, and as incomes rise (and households can afford larger houses) property taxes should gain. Thus, by explicitly including house value, income class and household size, a complete description of the pattern of property taxes payments can be developed.

Incidence is defined as property taxes as a percent of income. To calculate incidence for renter households, for example, a distribution of renter households by income class, rent paid and household size is needed. (The same information would be needed for owner households - that is, the distribution of owner households by income, house value, and household size.) The income distribution is necessary because it becomes the denominator of the incidence ratio. Rent is required as a proxy for property taxes. Renter property tax payments are not directly known, but the property taxes that renter

households pay can be estimated from the amount of rent that they pay.* (For homeowners, property tax can be estimated directly from house value data.) Therefore, our purpose was to develop the necessary income, rent and house value distributions for renter and owner households.

For both renters and owners we used eight income classes and six household sizes. Census data for renters contain eight categories of rent; for owners seven categories of house value. Thus for renters, our three dimensional matrix of income, rent and household size contained 8 by 8 by 6 or 384 cells; for owners, 8 by 7 by 6 or 336 cells.

LIMITATIONS ON AVAILABLE DATA

Much data is available from the 1970 Census of Population and Housing concerning renter and owner households. In particular, Table 117 of the Census of Housing presents a distribution of households by income and household size for renters and owners. This table is complemented for owners by Table 118 which presents a distribution of households by house value and income

* - Two assumptions are possible for renters. First, renters may be assumed to pay a flat percentage of their rent in property taxes. Second, the percent of rent that goes to pay property taxes could be varied with the rent level - being a higher percent of rent for low rent apartments and a lower percent of rent for high rent apartments. Either assumption enables us to use rents as a proxy for property tax payments. In our tests, we assumed that property taxes were a fixed percentage of rent.

and by Table 121 which shows households distributed by house value and number of bedrooms. For renters, Table 127 of the Census of Housing shows a distribution of renter households by gross rent and income class while Table 124 shows renter households distributed by rent and rooms per apartment. The Census Bureau also tabulates for both owner occupied units and renter occupied units the distribution of households by persons per room ratio.

Altogether this data is relatively complete in its description of the conditions and occupancy patterns of the Commonwealth of Pennsylvania's housing stock. Nevertheless this data had to be supplemented in order to undertake our analysis of property taxes. For example, the Census information on the distribution of owner households by income and household size, by income and house value, and by house value and number of bedrooms had to be merged into a full three dimensional matrix description of owner households by income class, household size, and house value.

Creating these matrixes was complicated by data that were not compatible. That is, house value was tabulated by number of bedrooms but number of bedrooms was not equal or even equivalent to household size. Similarly, rent was tabulated by the number of rooms in the apartment. The number of rooms, of course, is also not equivalent to renter household size.

Finally, house value and rent were not tabulated for all occupied units. For renter households, one family units on ten or more acres, rented at the time of the census, were not tabulated as to their rental price. The list of exclusions

for owner occupied units is much longer and more significant. House value was not tabulated for such owner occupied structures as mobile homes, trailers, cooperatives, condominiums, houses on ten or more acres, and units including a business or medical office.

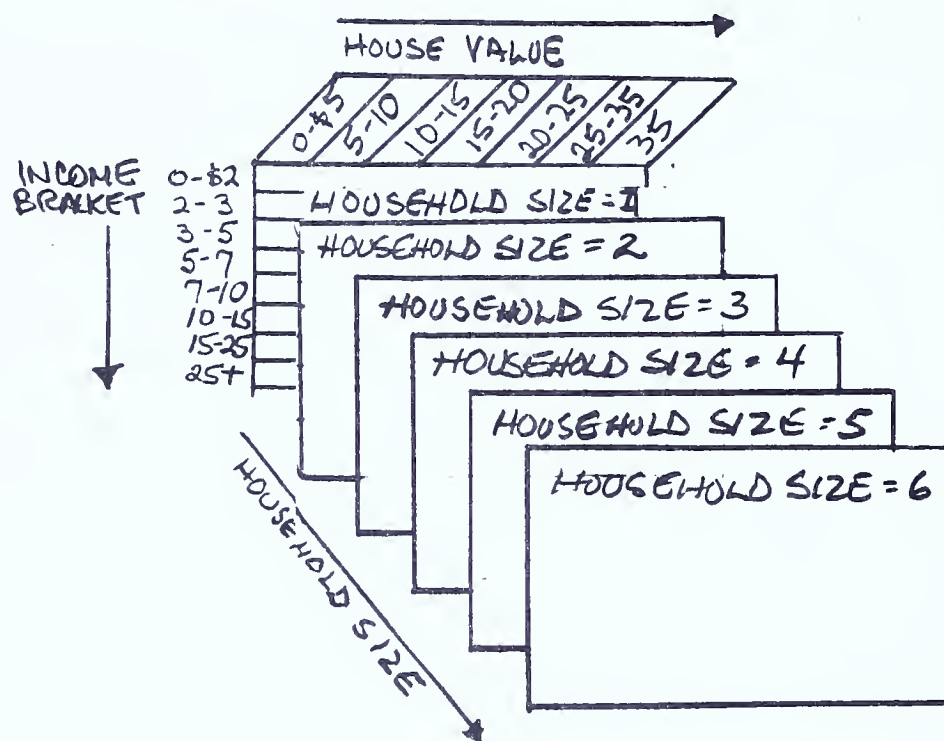
The limitations of the data available from the Bureau of the Census require three steps in the methodology.

- ¶ First, untabulated units must be allocated to the owner and renter matrices.
- ¶ Second, bedrooms per house and the rooms per apartment must be related to household size.
- ¶ Third, based in part on these two preceding steps, the third dimension must be added to the matrices of income by household size.

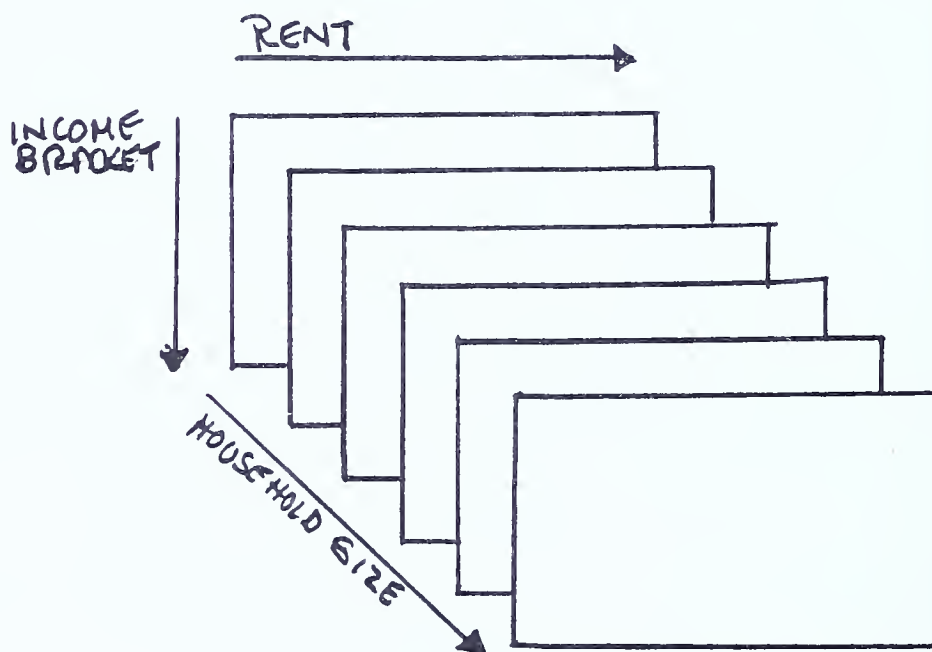
APPROACH TO THE DATA

Our approach to working around the limitations of the Census data was based on a view of the end product that we desired. This approach is best described in terms of the definition of the end product, then defining the intermediate steps required to produce that product. This overview approach was chosen to place a description of the methodology in a sharper context.

DESIRED END PRODUCT - OWNERS



DESIRED END PRODUCT - RENTERS



Approach

The desired end product was a distribution of households by income, house value, and household size (see Exhibit A-1). There are three possible combinations of matrices that could be used to develop this end product.

1. Income by house value for each household size
2. Income by household size for each house value
3. House value by household size for each income class.

Because we intended to calculate the ratio of income to property taxes (where property tax is based on house value), we chose to develop matrices of income by house value for each household size. Similarly, we chose to develop matrices of income by rent for each household size for renter occupied units.

These matrices could be tested against reported Census data by calculating the distribution of house value to income ratios for each household size. The overall distribution of owner households by house value to income ratio could be obtained by adding the distributions for each household size. (Similarly, we would obtain a distribution renter households by rent to income ratios for all household sizes.) These distributions could then be compared to the distribution published by the Census Bureau to verify the accuracy of the underlying matrices.

The distribution of households by income class and house value for each household size are available from reported Census data, however. If we knew the distribution of income for a given household size and the distribution of house

ALLOCATIONS FOR ONE PERSON, OWNER HOUSEHOLDS

INCOME BRACKET	HOUSE VALUE							TOTAL NO. OF 1 PERSON HOUSEHOLDS IN EACH INCOME BRACKET (THOUSANDS)
	0-\$2	2-3	3-5	5-7	7-10	10-15	15-25	
	0-\$5	5-10	10-15	15-20	20-25	25-35	35+	
								126
								41
								51
								33
								26
								13
								4
								1
TOTAL NO. OF 1 PERSON HOUSEHOLDS IN EACH HOUSE VALUE BRACKET THOUSANDS	38	93	78	50	22	11	4	299
								TOTAL NO. OF 1 PERSON HOUSEHOLDS (THOUSANDS)

value for a given household size we could estimate the distribution of income by house value. This estimating procedure would be based on our ability to allocate to individual cells in a matrix numbers such that the rows and columns add to the appropriate row and column totals (see Exhibit A-2). In this case the distribution of households for a given household size by income would be the row totals and the distribution of households by house value for a given household size would be the column totals.

Fortunately, the row totals - that is, the income distribution for a given household size - are available directly from the Census. The table we cited earlier, Table 117, presents adequate data for use at this point.

Determining column totals, however, is somewhat more difficult. The distribution of households by house value for a given household size (or similarly for renter occupied units) must be derived from the relationship between household size and the number of bedrooms per apartment (or rooms per apartment). Once this information is in hand, we could proceed fairly directly to the calculation of the necessary matrices.

Steps

In this section we will follow the development of the matrices step-by-step through the various manipulations and approximations that were required to achieve the end product. The process is illustrated by the flow chart in Exhibit A-3, following.

PROCESS FOR ESTIMATING DISTRIBUTION OF OWNER
HOUSEHOLDS BY INCOME, HOUSE VALUE AND HOUSEHOLD SIZE

STEPS *

1

CREATE HOUSE
VALUE BY
BEDROOM MATRIX

2

RELATE NO.OF
BEDROOMS TO
HOUSEHOLD SIZE

3

CALCULATE
PERSONS PER
ROOM

COMPARE TO
CENSUS DATA

5

CREATE HOUSE VALUE
BY HOUSEHOLD
SIZE MATRIX

7

CREATE HOUSE VALUE
BY INCOME MATRIX
FOR A GIVEN
HOUSEHOLD SIZE

8

REPEAT FOR
OTHER HOUSEHOLD
SIZES

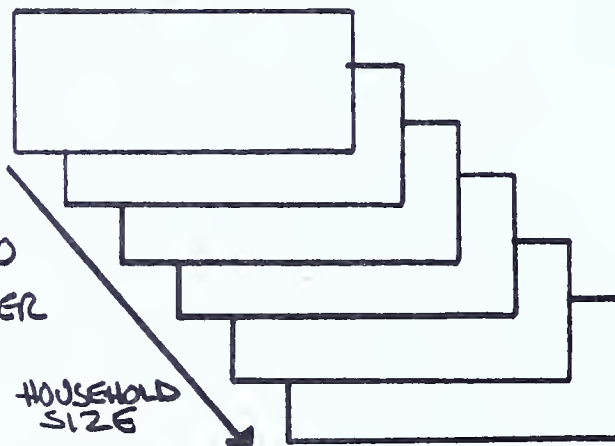
11

CALCULATE IMPUED
HOUSE VALUE TO
INCOME RATIOS

COMPARE TO
CENSUS DATA

HOUSE VALUE

INCOME



* STEPS 4, 6, 9 AND 10
APPLY ONLY TO RENTER
HOUSEHOLDS

1. We first allocated unallocated units in the distribution of house value by number of bedrooms for owner occupied units and rent by number of rooms for renter occupied units. The allocation was done proportionately. The scale factor for owner occupied units was 1.1979 while the comparable factor for renter occupied units was 1.0315.
2. Our next step was to relate bedrooms to household size for owner occupied units by developing a matrix of the number of bedrooms for a given household size. For example, a two-person household could live in a one-bedroom apartment, or they could live in a two-bedroom apartment with the second bedroom devoted to other uses. Thus for each household size, estimates of the number of households living in units with 0, 1, 2 - - - etc. bedrooms were prepared.
3. To determine if the distribution of households by bedroom and household size were appropriate, we tested the implied distribution of persons per room against Census data. If the number of rooms in a one-bedroom house and the size of the household living in that house are known, we can calculate the number of persons per room. The distribution of persons per room ratios can then be compared to published Census data. The matrix developed in Step 2 was modified until the distribution of persons per room ratios approximated that given in the Census data.

4. Our next step was to perform a comparable analysis for renter households, relating the number of rooms per apartment to household size and tested the implied distribution of persons per room against published Census data. The renter by bedroom matrix was modified until the test results compared favorable to the data given by the Bureau of the Census.
5. The next step was to use the matrix developed in Step 2 to translate the matrix of house value by number of bedrooms into a matrix of house value by household size. For example, one person households were distributed across all bedroom sizes. The distribution of house values for one-person households, therefore, is a composite of the distributions of house values for each of those bedroom sizes.
6. This process was then repeated for renters using the matrix of rent by number of rooms and the matrix of rooms per unit by household size for renters. For a given household size we would determine the distribution of rooms per unit. This room distribution would then lead to the distribution of rents for that household size in a manner similar to that used for the owner occupied units (see Step 5).
7. The pieces were then in place to construct a matrix of house value by income for household sizes for owners. The row totals in the matrix, equivalent to a distribution of income for that household

size, were available from Census Table 117. The column totals for the matrix, equivalent to a distribution of house value for that household size, were prepared in Step 5. Based on these row and column totals, we then calculated a matrix that met the criteria of the sums of row and column entries being equal to the given row and column totals.

8. The process of creating the matrices was repeated six times, once for each household size.
9. The process of creating rent by income matrices for renter households then proceeded along the same lines as the comparable problem for owner households (see Step 7). For renter households, our row totals were taken from the income distribution for household sizes given in Table 117 for renters. Row totals, equivalent to a distribution of rents for a given household size for renters, were taken from the matrix calculated in Step 6. Given row and column totals, we then distributed these across the matrix, such that the sums of the rows in the columns was equal to the given row and column totals.
10. This process was repeated for each of the six renter household sizes.
11. For both owners and renters, the implied ratios of house value to income and rent to income were calculated and compared to published data. The matrices prepared in Steps 8 and 10 were modified until the test results compared favorably to tables published by the Bureau of the Census.

ASSUMPTIONS

The process that we have just described includes several assumptions that may have affected the final results. Although the assumptions are implicit in the approach and steps described in the previous section, we will attempt to make those assumptions explicit here.

Unallocated Units

The distributions of house value by bedrooms per unit and the distribution of rent by number of rooms per apartment both leave unallocated a certain number of units. For renter units, the unallocated units are about 3 percent of the total. For owner occupied units, the percent of unallocated units is about 20 percent.

These units were allocated by a simple proportional scaling of the whole matrix. Thus we took the total number of occupied units for home owners and divided that by the number of allocated units. We then multiplied each entry in the matrix by the scale factor that resulted. Similarly, for renter occupied units, we divided the total number of renter units by the number of allocated units and multiplied the matrix of allocated units by the resulting proportion.

This procedure implies that the distribution of unallocated units is the same as the distribution of units that are allocated. For renter units this assumption is probably not quite accurate, because only renter occupied units on 10 acres or more are unallocated and these units probably have higher rents than the

overall distribution of rents. Nevertheless, this assumption should not introduce significant errors since the percent of unallocated units is small.

For homeowner units, however, the percent is much larger. In this case, however, the kinds of units that are unallocated range broadly across the house value spectrum. Therefore, it may not be unrealistic to assume that the house value by number of bedrooms distribution for unallocated units is comparable to the matrix of allocated units. If there were a significant skewing of unallocated units, however, either toward the high or low end of the house value scale, this might introduce some distortion into the matrix as we developed it.

Bedroom, Room and Household Size Relationships

In developing a relationship between household size and number of bedrooms we were constrained only by the column totals, namely the number of one, two and three person households, etc., and the number of units for each bedroom size. The number of ways to allocated units to the cells of this matrix is very large and therefore our final selection must be somewhat arbitrary.

The test for the adequacy of this distribution, requires computing the number of persons per room. The test is simple enough for renter occupied units since the distribution being tested is renter household sizes by number of rooms. For owner occupied houses, however, we must make some assumptions about the number of rooms in a one bedroom house, the number of rooms in a two bedroom house, etc.

Based on the appropriate assumptions for owner occupied units and the straight calculation for renter occupied units, the implied distribution of persons per room ratios approaches the ratios given by the Bureau of the Census. In particular, these ratios fit the high and the low end of the persons per room spectrum fairly well. Distortions in the middle range of the persons per room ratio distributions were unavoidable due to limitations in Census data. Nevertheless, though there are several assumptions, these distributions appear to be within acceptable limits.

House Value and Rent Distributions

The next step in our analysis was to develop a distribution of house value by income class for owner occupied units by household size and a similar rent by income class distribution for renter occupied units of a given household size. Suppose, for example, that we are working with one person, owner households. Let us suppose that there are 100 such households. Twenty of these households may be living in one bedroom houses. There are, however, 200 one bedroom houses, and we know the house value distribution for those one bedroom units. In our approach, we took the 20 one person households that were living in one bedroom units and divided that number by the total number of one bedroom units, namely 200, to obtain a fraction, in this case 0.1. We then multiplied this fraction times the number of one bedroom households for each house value class. We added this distribution of households by house value to the similar distribution

developed for two bedroom households, three bedroom households, etc. Thus, we built up a distribution of house values for one person households.

This approach assumes that the house value distribution for one person households living in one bedroom units will be proportional to the distribution of house values for one bedroom units overall. Although this is a reasonable and operational assumption, it might not conform to reality too closely. For example, one might assume that one person households would tend to live in less expensive units than other household sizes. Alternatively, and anecdotally, one might assume that one person households are wealthy little old ladies living in mansions. Although there are a very large number of possible distributions that would satisfy the constraints that we have placed on this problem, the results of this particular approach do not seem to be significantly erroneous.

Matrix Filling

The information determined in previous steps provides the row and column totals for the matrix of income by house value (or rent) for each household size. Given these row and column totals we allocated units to the cells of the matrix such that the sums of the row and column elements were equal to the given row and column totals. This series of matrices, six for renter households and six for owner households, was the key end product.

As pointed out earlier, there are a very large number of ways to distribute numbers to cells of the matrix such that the row and column sums equal given row and column totals. The method that we used was a two-step approach.

First, households were allocated to cells proportionately to the row and column totals. Then cells were adjusted so that implied house value to income and rent to income ratios were in line with published data.

Suppose, for example, we are trying to allocate one person households with houses less than \$3,000 in value across the income spectrum. We calculated the ratio of the total number of persons in the first income category divided by the total number of one person households. We then multiplied this fraction times the total number of households in houses in the first house value category. The succeeding income classes were calculated similarly for that house value category. We then moved on to the next category of house values and repeated the distributional process for income classes until the matrix itself was full.

This approach assumes that the income distribution of one person households who live in house of less than \$3,000 in value is proportional to the overall income distribution for one person households, and so on. Other biases are possible, however. For example, one might assume that one person households living in houses of less than \$3,000 in value would tend to have lower incomes than the overall distribution of incomes for one person households.

Thus the second step in the process involved calculating the implied house value (or rent) to income ratios and comparing these to published data. The matrixes were then modified (subject to the constraint that row and column elements had to add to given row and column totals) so that calculated ratios were about equal to those provided by the Bureau of the Census. This second step thus provided some correction to the initial, proportional allocation process.

COMPUTER ASSISTED CALCULATIONS

The calculations defined in the proceeding sections would have consumed a significant amount of time if it had not been possible to computerize much of the routine calculations. This section reviews the data files and programs that were essential to carrying out this analysis.

Data Files

There were four data files for owner households and another four for renter households. The first file for both groups was the income by household size matrix. This matrix was taken directly from Census Table 117 and keypunched into the computer. The owner file is called OWNINC and the renter file is called RNTRINC.

The second major file used in this analysis was a base file relating house value or rent and unit size. For owners, the base file was a matrix of house value by number of bedrooms. For renters, the base file was a matrix of rent by number of rooms.

The third file was the distribution of households by household size and number of bedrooms for owners and the distribution of households by household size and number of rooms for renters. The owner matrix was entitled HHBYR and the renter matrix was called RNTRBYBR. Typically, these files were written into the computer memory by a program designed to allocate numbers to the matrix according to certain rules. Subsequently, individual lines were changed by hand as necessary to satisfy the persons per room ratio test.

The final set of data files of key importance in this analysis were the final distributions of house value by household size for owners and rent by household size for renters. The owner file was entitled OWNERDAT and the renter file was called RNTRTATA. These files were written by a program that had access to both the base files and the household size by bedrooms or rooms files.

Key Programs

The most important program in this package is a program entitled MATFIL3. This program is designed to fill a matrix given row and column totals and various initializing options. A predecessor to this program, MAFIL2, is described in a separate note. MATFIL3 was used to prepare the HHBYBR matrix and the RNTRBYBR matrix. In addition, this program generated the distribution of house value and income by household size for owners and rent by income for household size for renters by reading row and column totals directly from the RNTRINC and OWNINC files and the RNTRDATA and OWNERDATA files, respectively.

A second useful program was entitled TEST1. This program was designed to read data in the HHBYBR and RNTRBYBR files and calculate the persons per room ratio and the distribution of that ratio. The printout of the distribution of persons per room ratio could then be compared directly to the distribution published by the Census Bureau. Modifications were then made to the HHBYBR and RNTRBYBY files.

The final program that saw important use in this analysis was entitled WORK1. This program is designed to calculate the distribution of house value for a given household size. It reads directly from the files BASFIL1 and HHBYBR for owners and BASFIL2 and RNTRBYBR for renters. The output of this program is written directly into a third file, OWNERDAT for owners and RNTRDATA for renters. Although the calculations involved were simple proportional computations and summations, the number of operations were many. Thus this program saved a considerable amount of time in preparing the OWNERDAT and RNTRDATA files.

* * *

In summary, to calculate the incidence of property taxes on ventures and home owners by income rent house value and household size, we had to develop a set of matrices of households distributed by income and house value for six household size categories for renters. Although the Census data describing the occupancy patterns in the housing stock in Pennsylvania was rich, it was not adequate to provide this information directly. Therefore, we had to develop a methodology for interpolating from the available information. This methodology focused on obtaining row and column totals for the desired matrices. The row totals were available directly from Census information for the income distribution for renters and homeowners by household size. The distribution of house value by household size for owners and renters had to be calculated by a two-step process that was checked in its intermediate stage by test against the

distribution of the persons per room ratio. Several computer programs were very useful in carrying out this analysis. In particular, the matrix filling program, MATFIL3, facilitated the distribution of row and column totals over the cells of the matrix. Although a number of assumptions were made to facilitate the analysis, the resulting distributions compared favorably to published Census data.

RESULTS OF INCIDENCE ANALYSIS

The data files and computer programs described in Appendix A were used to prepare incidence analyses for each household size by income and house value (or rent) for several tax options. With minor modifications, the program REALTAX is capable of calculating yield and incidence for a large number of property tax proposals. The results of the analyses presented in this appendix are intended to acquaint the Tax Reform Committee with the program output and to provide data substantiating the incidence analyses in Chapters 4 and 5 of the report.

INPUTS AND FORMATS

The program requires inputs in the form of data files and responses from the operator. The required data files, accessed by the program, are:

- ¶ The appropriate distribution of households by income and house value (or rent) for a given household size (e.g., XHH1 or XRR3)
- ¶ A tax table for 1970 (called TXTBL70)
- ¶ An income distribution of households by household size for owners and renters (i.e., OWN OCC or RNTROCC).

These data files are described in the preceding appendix on methodology.

The second set of inputs to the program is provided by the operator. The household size being processed and the assessed value to market value ratios assumed in this case are the first two inputs. The household size group must correspond to the household group in the data file. That is, if the data file is

1-person owner households (XHH1), then the household size input should only be "1." Because we used only effective tax rates in our analysis, the assessment ratio was always equal 1.

The tax rate is the third input. For owners, the effective tax rate was taken to be 0.0346 times the full value of their property. For renters, the effective tax rate was estimated to be 0.25 times rent. The derivation of these tax rates is discussed in Chapters 2 and 4 of this report.

The final input is an owner/renter category. For owners, there are seven classes of house value. For renters, there are eight categories of rent. The eighth category, however, is "no cash rent." An input specifying owner or renter is required to structure the output and some internal routines.

Following these inputs, the program provides four increasingly detailed outputs:

1. The average tax payment for households of this size and the total taxes paid by this household group
2. The average tax incidence for the specified household group
3. The average tax incidence for households of this size by income class
4. An incidence matrix for households of this size.

For homeowners, a second series of "after-tax" outputs are calculated. These are based on the estimated Federal tax savings available to owners at a given income level, household size, and house value. This series of outputs parallels the four outputs above.

The calculation of these outputs is reviewed in Appendix A.

RESULTS

The results of several tests of alternative property tax rate structures by this program are included in the following pages. The first six pages (one for each household size) show the tax burden on renters - assuming the tax rate is 25 percent of rent. The remaining pages show the tax burden on homeowners for three different sets of assumptions, as follows:

- ¶ The base case for homeowners tests the yield and incidence of an effective tax rate of 0.0346 on market value.
- ¶ The second case for homeowners tests yield and incidence of an effective tax rate of 0.0346 on market value with the first \$5,000 of assessed value exempted from taxation.
- ¶ The third owner case tests yield and incidence of a progressive property tax with rates equal to 0.025 for houses less than \$20,000 and 0.05 for houses of value equal to or greater than that amount.

These analyses are discussed and evaluated in Chapters 4 and 5 of this report.

RENTER BASE CASE

(Current Tax)

REALTAX 22:46EDT 03/01/72

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)
 ? 1,1,.25,8

AVERAGE TAX FOR HH= 1 IS 279.657 TOTAL TAXES = 95659.2

AVERAGE INCIDENCE FOR HH= 1 IS 0.0622

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.16978
2500	.11924
4000	.06802
6000	.05812
8500	.05008
12500	.02477
20000	.01464
30000	.00493

INCIDENCE MATRIX FOR HH= 1

.0750	.1250	.1750	.2250	.3125	.4375	.5625	.0000
.0360	.0600	.0840	.1080	.1500	.2100	.2700	.0000
.0225	.0375	.0525	.0675	.0937	.1312	.1687	.0000
.0150	.0250	.0350	.0450	.0625	.0875	.1125	.0000
.0106	.0176	.0247	.0318	.0441	.0618	.0794	.0000
.0072	.0120	.0168	.0216	.0300	.0420	.0540	.0000
.0045	.0075	.0105	.0135	.0188	.0263	.0337	.0000
.0030	.0050	.0070	.0090	.0125	.0175	.0225	.0000

USED 1.01 UNITS

013
 WHAT?

013 FILES XRR2
 RUN

REALTAX 22:47EDT 08/01/72

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)
 ? 2,1,.25,8

AVERAGE TAX FOR HH= 2 IS 292.334 TOTAL TAXES = 97977.5

AVERAGE INCIDENCE FOR HH= 2 IS 0.0357

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.12360
2500	.10701
4000	.06401
6000	.04820
8500	.03423
12500	.02926
20000	.01746
30000	.00521

INCIDENCE MATRIX FOR HH= 2

.0750	.1250	.1750	.2250	.3125	.4375	.5625	.0000
.0360	.0600	.0840	.1080	.1500	.2100	.2700	.0000
.0225	.0375	.0525	.0675	.0937	.1312	.1687	.0000
.0150	.0250	.0350	.0450	.0625	.0875	.1125	.0000
.0106	.0176	.0247	.0318	.0441	.0618	.0794	.0000
.0072	.0120	.0168	.0216	.0300	.0420	.0540	.0000
.0045	.0075	.0105	.0135	.0198	.0263	.0337	.0000
.0030	.0050	.0070	.0090	.0125	.0175	.0225	.0000

USED 1.13 UNITS

013
 WHAT?

013 FILES XRR3
RUN

REALTAX 22:51EDT 08/01/72

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)
7 3,+.1,.25,8

AVERAGE TAX FOR HH= 3 IS 325.077 TOTAL TAXES = 61964.9

AVERAGE INCIDENCE FOR HH= 3 IS 0.0384

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.16716
2500	.12699
4000	.07462
6000	.05140
8500	.04457
12500	.02799
20000	.01523
30000	.00649

INCIDENCE MATRIX FOR HH= 3

.0750	.1250	.1750	.2250	.3125	.4375	.5625	.0000
.0360	.0600	.0840	.1080	.1500	.2100	.2700	.0000
.0225	.0375	.0525	.0675	.0937	.1312	.1687	.0000
.0150	.0250	.0350	.0450	.0625	.0875	.1125	.0000
.0106	.0176	.0247	.0318	.0441	.0618	.0794	.0000
.0072	.0120	.0168	.0216	.0300	.0420	.0540	.0000
.0045	.0075	.0105	.0135	.0188	.0263	.0337	.0000
.0030	.0050	.0070	.0090	.0125	.0175	.0225	.0000

USED 1.13 UNITS

013
WHAT?

013 FILES XRR4
RUN

REALTAX 22:52EDT 08/01/72

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)
? 4,1,.25,8

AVERAGE TAX FOR HH= 4 IS 334.396 TOTAL TAXES = 42996.9

AVERAGE INCIDENCE FOR HH= 4 IS 0.039

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.27066
2500	.11363
4000	.05864
6000	.04382
8500	.04664
12500	.03119
20000	.01694
30000	.00965

INCIDENCE MATRIX FOR HH= 4

.0750	.1250	.1750	.2250	.3125	.4375	.5625	.0000
.0360	.0600	.0840	.1080	.1500	.2100	.2700	.0000
.0225	.0375	.0525	.0675	.0937	.1312	.1687	.0000
.0150	.0250	.0350	.0450	.0625	.0875	.1125	.0000
.0106	.0176	.0247	.0318	.0441	.0618	.0794	.0000
.0072	.0120	.0168	.0216	.0300	.0420	.0540	.0000
.0045	.0075	.0105	.0135	.0188	.0263	.0337	.0000
.0030	.0050	.0070	.0090	.0125	.0175	.0225	.0000

USED 1.13 UNITS

013
UNITS?

013 FILES XRR5
RUN

REALTAX 22:53EDT 08/01/72

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-PENTER(8)
? 5,1,.25,8

AVERAGE TAX FOR HH= 5 IS 295.58 TOTAL TAXES = 21600.4

AVERAGE INCIDENCE FOR HH= 5 IS 0.0337

AVERAGE INCIDENCE BY INCOME CLASS

INCOME	AVERAGE INCIDENCE
1200	.10685
2500	.10977
4000	.06690
6000	.05365
8500	.03892
12500	.02704
20000	.01062
30000	.00798

INCIDENCE MATRIX FOR HH= 5

.0750	.1250	.1750	.2250	.3125	.4375	.5625	.0000
.0360	.0600	.0840	.1090	.1500	.2100	.2700	.0000
.0225	.0375	.0525	.0675	.0937	.1312	.1687	.0000
.0150	.0250	.0350	.0450	.0625	.0875	.1125	.0000
.0106	.0176	.0247	.0318	.0441	.0618	.0794	.0000
.0072	.0120	.0168	.0216	.0300	.0420	.0540	.0000
.0045	.0075	.0105	.0135	.0188	.0263	.0337	.0000
.0030	.0050	.0070	.0090	.0125	.0175	.0225	.0000

USED 1.13 UNITS

013
WHAT?
013 FILES XRR6
RUN

REALTAX 22:54EDT 08/01/72

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)
7 6,1,.25,8

AVERAGE TAX FOR HH= 6 IS 306.072 TOTAL TAXES = 25745.2

AVERAGE INCIDENCE FOR HH= 6 IS 0.0351

AVERAGE INCIDENCE BY INCOME CLASS

INCOME	AVERAGE INCIDENCE
1200	.16385
2500	.12192
4000	.06305
6000	.05655
9500	.03783
12500	.02986
20000	.01137
30000	.00623

INCIDENCE MATRIX FOR HH= 6

.0750	.1250	.1750	.2250	.3125	.4375	.5625	.0000
.0360	.0600	.0840	.1080	.1500	.2100	.2700	.0000
.0225	.0375	.0525	.0675	.0937	.1312	.1687	.0000
.0150	.0250	.0350	.0450	.0625	.0875	.1125	.0000
.0106	.0176	.0247	.0318	.0441	.0618	.0794	.0000
.0072	.0120	.0168	.0216	.0300	.0420	.0540	.0000
.0045	.0075	.0105	.0135	.0188	.0263	.0337	.0000
.0030	.0050	.0070	.0090	.0125	.0175	.0225	.0000

USED 1.13 UNITS

OWNER BASE CASES

(Current Tax)

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)
 ? 1,1,.0346,7

AVERAGE TAX FOR HH= 1 IS 436.83 TOTAL TAXES = 130581.

AVERAGE INCIDENCE FOR HH= 1 IS 0.1098

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.29481
2500	.17011
4000	.09615
6000	.08387
8500	.07074
12500	.05631
20000	.04670
30000	.04092

INCIDENCE MATRIX FOR HH= 1

.1009	.2163	.3604	.5046	.6487	.8650	◆1.2975	.0000
.0484	.1033	.1730	.2422	.3114	.4152	.6228	.0000
.0303	.0649	.1081	.1514	.1946	.2595	.3892	.0000
.0202	.0433	.0721	.1009	.1298	.1730	.2595	.0000
.0142	.0305	.0509	.0712	.0916	.1221	.1832	.0000
.0097	.0208	.0346	.0484	.0623	.0830	.1246	.0000
.0061	.0130	.0216	.0303	.0389	.0519	.0778	.0000
.0040	.0086	.0144	.0202	.0259	.0346	.0519	.0000

AFTER TAX CALCULATION FOR HOMEOWNERS

AVERAGE TAX FOR HH= 1 IS 406.842 TOTAL TAXES = 121617.

AVERAGE INCIDENCE FOR HH= 1 IS 0.0517

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.29481
2500	.16142
4000	.08689
6000	.07365
8500	.06121
12500	.05070
20000	.03986
30000	.03313

INCIDENCE MATRIX FOR HH= 1

.1009	.2163	.3604	.5046	.6487	.8650	◆1.2975	.0000
.0460	.0985	.1642	.2298	.2955	.3940	.5910	.0000
.0274	.0586	.0977	.1368	.1759	.2345	.3518	.0000
.0177	.0380	.0633	.0886	.1139	.1519	.2279	.0000
.0123	.0264	.0440	.0616	.0793	.1057	.1585	.0000
.0087	.0187	.0312	.0436	.0561	.0748	.1121	.0000
.0052	.0111	.0185	.0258	.0332	.0443	.0665	.0000
.0033	.0070	.0117	.0163	.0210	.0280	.0420	.0000

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)
 ? 2,1,.0346,7

AVERAGE TAX FOR HH= 2 IS 519.172 TOTAL TAXES = 389240.

AVERAGE INCIDENCE FOR HH= 2 IS 0.0565

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.28592
2500	.15759
4000	.09578
6000	.06906
8500	.05941
12500	.04560
20000	.04253
30000	.03436

INCIDENCE MATRIX FOR HH= 2

.1009	.2163	.3604	.5046	.6487	.8650	♦1.2975	.0000
.0484	.1038	.1730	.2422	.3114	.4152	.6228	.0000
.0303	.0649	.1081	.1514	.1946	.2595	.3892	.0000
.0202	.0433	.0721	.1009	.1298	.1730	.2595	.0000
.0142	.0305	.0509	.0712	.0916	.1221	.1832	.0000
.0097	.0208	.0346	.0484	.0623	.0830	.1246	.0000
.0061	.0130	.0216	.0303	.0389	.0519	.0778	.0000
.0040	.0086	.0144	.0202	.0259	.0346	.0519	.0000

AFTER TAX CALUCALTION FOR HOMEDOWNERS

AVERAGE TAX FOR HH= 2 IS 463.786 TOTAL TAXES = 347716.

AVERAGE INCIDENCE FOR HH= 2 IS 0.0253

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.28592
2500	.15759
4000	.08793
6000	.06114
8500	.05164
12500	.04133
20000	.03647
30000	.02793

INCIDENCE MATRIX FOR HH= 2

.1009	.2163	.3604	.5046	.6487	.8650	♦1.2975	.0000
.0484	.1038	.1730	.2422	.3114	.4152	.6228	.0000
.0278	.0596	.0993	.1390	.1787	.2382	.3574	.0000
.0179	.0383	.0638	.0894	.1149	.1532	.2298	.0000
.0124	.0265	.0442	.0619	.0796	.1061	.1592	.0000
.0088	.0188	.0314	.0439	.0564	.0753	.1129	.0000
.0052	.0111	.0185	.0260	.0334	.0445	.0668	.0000
.0033	.0070	.0117	.0164	.0211	.0291	.0422	.0000

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-PENTER(8)
 ? 3,1,.0346,7

AVERAGE TAX FOR HH= 3 IS 530.948 TOTAL TAXES = 250436.

AVERAGE INCIDENCE FOR HH= 3 IS 0.0445

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.29197
2500	.20818
4000	.10983
6000	.06781
8500	.05310
12500	.04008
20000	.03502
30000	.03503

INCIDENCE MATRIX FOR HH= 3

.1009	.2163	.3604	.5046	.6487	.8650	♦1.2975	.0000
.0484	.1038	.1730	.2422	.3114	.4152	.6228	.0000
.0303	.0649	.1081	.1514	.1946	.2595	.3892	.0000
.0202	.0433	.0721	.1009	.1298	.1730	.2595	.0000
.0142	.0305	.0509	.0712	.0916	.1221	.1832	.0000
.0097	.0208	.0346	.0484	.0623	.0830	.1246	.0000
.0061	.0130	.0216	.0303	.0389	.0519	.0778	.0000
.0040	.0086	.0144	.0202	.0259	.0346	.0519	.0000

AFTER TAX CALCULATION FOR HOMEOWNERS

AVERAGE TAX FOR HH= 3 IS 471.279 TOTAL TAXES = 222291.

AVERAGE INCIDENCE FOR HH= 3 IS 0.0198

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.29197
2500	.20818
4000	.10392
6000	.06061
8500	.04640
12500	.03661
20000	.03015
30000	.02859

INCIDENCE MATRIX FOR HH= 3

.1009	.2163	.3604	.5046	.6487	.8650	♦1.2975	.0000
.0484	.1038	.1730	.2422	.3114	.4152	.6228	.0000
.0286	.0614	.1023	.1432	.1841	.2455	.3683	.0000
.0180	.0387	.0644	.0902	.1160	.1546	.2320	.0000
.0124	.0267	.0445	.0622	.0800	.1067	.1601	.0000
.0088	.0190	.0316	.0442	.0569	.0758	.1138	.0000
.0052	.0112	.0186	.0261	.0335	.0447	.0670	.0000
.0033	.0071	.0118	.0165	.0212	.0282	.0424	.0000

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)
 ? 4,1,.0346M7

B - 15

INCORRECT FORMAT--RETYPE IT

? 4M+,1,.0346,7

AVERAGE TAX FOR HH= 4 IS 530.846 TOTAL TAXES = 236758.

AVERAGE INCIDENCE FOR HH= 4 IS 0.0415

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.32658
2500	.21994
4000	.09082
6000	.06489
8500	.05342
12500	.03760
20000	.03433
30000	.03607

INCIDENCE MATRIX FOR HH= 4

.1009	.2163	.3604	.5046	.6487	.8650	♦1.2975	.0000
.0484	.1038	.1730	.2422	.3114	.4152	.6228	.0000
.0303	.0649	.1081	.1514	.1946	.2595	.3892	.0000
.0202	.0433	.0721	.1009	.1298	.1730	.2595	.0000
.0142	.0305	.0509	.0712	.0916	.1221	.1832	.0000
.0097	.0208	.0346	.0484	.0623	.0830	.1246	.0000
.0061	.0130	.0216	.0303	.0389	.0519	.0778	.0000
.0040	.0086	.0144	.0202	.0259	.0346	.0519	.0000

AFTER TAX CALCULATION FOR HOMEOWNERS

AVERAGE TAX FOR HH= 4 IS 471.814 TOTAL TAXES = 210430.

AVERAGE INCIDENCE FOR HH= 4 IS 0.0185

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.32658
2500	.21994
4000	.09082
6000	.05874
8500	.04700
12500	.03464
20000	.02967
30000	.02955

INCIDENCE MATRIX FOR HH= 4

.1009	.2163	.3604	.5046	.6487	.8650	♦1.2975	.0000
.0484	.1038	.1730	.2422	.3114	.4152	.6228	.0000
.0303	.0649	.1081	.1514	.1946	.2595	.3892	.0000
.0183	.0391	.0652	.0913	.1174	.1566	.2349	.0000
.0125	.0269	.0448	.0627	.0806	.1074	.1611	.0000
.0089	.0191	.0319	.0446	.0574	.0765	.1148	.0000
.0052	.0112	.0187	.0262	.0336	.0449	.0673	.0000
.0033	.0071	.0118	.0165	.0213	.0283	.0425	.0000

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)
 ? 5,1,.033+46,7

AVERAGE TAX FOR HH= 5 IS 650.758 TOTAL TAXES = 191259.

AVERAGE INCIDENCE FOR HH= 5 IS 0.0496

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.35348
2500	.26224
4000	.09509
6000	.06386
8500	.06774
12500	.04758
20000	.04080
30000	.04127

INCIDENCE MATRIX FOR HH= 5

.1009	.2163	.3604	.5046	.6487	.8650	♦1.2975	.0000
.0484	.1038	.1730	.2422	.3114	.4152	.6228	.0000
.0303	.0649	.1081	.1514	.1946	.2595	.3892	.0000
.0202	.0433	.0721	.1009	.1298	.1730	.2595	.0000
.0142	.0305	.0509	.0712	.0916	.1221	.1832	.0000
.0097	.0208	.0346	.0484	.0623	.0830	.1246	.0000
.0061	.0130	.0216	.0303	.0389	.0519	.0778	.0000
.0040	.0086	.0144	.0202	.0259	.0346	.0519	.0000

AFTER TAX CALCULATION FOR HOMEOWNERS

AVERAGE TAX FOR HH= 5 IS 567.18 TOTAL TAXES = 166695.

AVERAGE INCIDENCE FOR HH= 5 IS 0.0218

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.35348
2500	.26224
4000	.09509
6000	.05898
8500	.06011
12500	.04096
20000	.03542
30000	.03393

INCIDENCE MATRIX FOR HH= 5

.1009	.2163	.3604	.5046	.6487	.8650	♦1.2975	.0000
.0484	.1038	.1730	.2422	.3114	.4152	.6228	.0000
.0303	.0649	.1081	.1514	.1946	.2595	.3892	.0000
.0186	.0399	.0666	.0932	.1198	.1598	.2397	.0000
.0126	.0271	.0452	.0632	.0813	.1084	.1626	.0000
.0083	.0179	.0298	.0417	.0536	.0715	.1072	.0000
.0053	.0113	.0188	.0263	.0338	.0451	.0676	.0000
.0033	.0071	.0119	.0166	.0213	.0284	.0427	.0000

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)
 7 6,1,.0346,7

AVERAGE TAX FOR HH= 6 IS 729.978 TOTAL TAXES = 210690.

AVERAGE INCIDENCE FOR HH= 6 IS 0.0548

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.34402
2500	.24018
4000	.09418
6000	.07409
8500	.06968
12500	.04934
20000	.05514
30000	.03788

INCIDENCE MATRIX FOR HH= 6

.1009	.2163	.3604	.5046	.6487	.8650	♦1.2975	.0000
.0484	.1032	.1730	.2422	.3114	.4152	.6228	.0000
.0303	.0649	.1081	.1514	.1946	.2595	.3892	.0000
.0202	.0433	.0721	.1009	.1298	.1730	.2595	.0000
.0142	.0305	.0509	.0712	.0916	.1221	.1832	.0000
.0097	.0208	.0346	.0484	.0623	.0830	.1246	.0000
.0061	.0130	.0216	.0303	.0389	.0519	.0778	.0000
.0040	.0086	.0144	.0202	.0259	.0346	.0519	.0000

AFTER TAX CALCULATION FOR HOMEOWNERS

AVERAGE TAX FOR HH= 6 IS 640.374 TOTAL TAXES = 184828.

AVERAGE INCIDENCE FOR HH= 6 IS 0.0242

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.34402
2500	.24018
4000	.09418
6000	.07087
8500	.06244
12500	.04261
20000	.04810
30000	.03125

INCIDENCE MATRIX FOR HH= 6

.1009	.2163	.3604	.5046	.6487	.8650	♦1.2975	.0000
.0484	.1033	.1730	.2422	.3114	.4152	.6228	.0000
.0303	.0649	.1081	.1514	.1946	.2595	.3892	.0000
.0193	.0414	.0690	.0965	.1241	.1655	.2482	.0000
.0128	.0274	.0456	.0638	.0821	.1094	.1642	.0000
.0084	.0179	.0299	.0418	.0538	.0717	.1076	.0000
.0053	.0113	.0189	.0264	.0339	.0453	.0679	.0000
.0033	.0071	.0119	.0166	.0214	.0285	.0428	.0000

OWNER EXEMPTIONS CASE

(First \$5,000 of Assessed
Value Exempted)



INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-FENTER(8)

? 1,.7,.0346,7

AVERAGE TAX FOR HH= 1 IS 204.609 TOTAL TAXES = 61163.7

AVERAGE INCIDENCE FOR HH= 1 IS 0.0514

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.11124
2500	.07779
4000	.03716
6000	.04162
8500	.04211
12500	.03646
20000	.03376
30000	.03235

INCIDENCE MATRIX FOR HH= 1

.0000	.0103	.1545	.2986	.4428	.6590	♦1.0915	.0000
.0000	.0049	.0741	.1433	.2125	.3163	.5239	.0000
.0000	.0031	.0463	.0896	.1328	.1977	.3275	.0000
.0000	.0021	.0309	.0597	.0886	.1318	.2183	.0000
.0000	.0015	.0218	.0422	.0625	.0930	.1541	.0000
.0000	.0010	.0148	.0287	.0425	.0632	.1048	.0000
.0000	.0006	.0093	.0179	.0266	.0395	.0655	.0000
.0000	.0004	.0062	.0119	.0177	.0264	.0437	.0000

AFTER TAX CALCULATION FOR HOMEOWNERS

AVERAGE TAX FOR HH= 1 IS 188.5 TOTAL TAXES = 56342.2

AVERAGE INCIDENCE FOR HH= 1 IS 0.0239

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.11124
2500	.07381
4000	.03353
6000	.03655
8500	.03644
12500	.03283
20000	.02882
30000	.02619

INCIDENCE MATRIX FOR HH= 1

.0000	.0103	.1545	.2986	.4428	.6590	♦1.0915	.0000
.0000	.0047	.0704	.1360	.2017	.3002	.4972	.0000
.0000	.0028	.0419	.0810	.1201	.1787	.2960	.0000
.0000	.0018	.0271	.0524	.0778	.1153	.1917	.0000
.0000	.0013	.0189	.0365	.0541	.0805	.1334	.0000
.0000	.0009	.0134	.0258	.0383	.0570	.0943	.0000
.0000	.0005	.0079	.0153	.0227	.0338	.0559	.0000
.0000	.0003	.0056	.0097	.0143	.0213	.0354	.0000

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)
 ? 2,.7,.0346,7

AVERAGE TAX FOR HH= 2 IS 277.762 TOTAL TAXES = 208248.

AVERAGE INCIDENCE FOR HH= 2 IS 0.0302

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.10981
2500	.06585
4000	.03762
6000	.03031
8500	.03064
12500	.02589
20000	.02853
30000	.02615

INCIDENCE MATRIX FOR HH= 2

.0000	.0103	.1545	.2986	.4428	.6590	♦1.0915	.0000
.0000	.0049	.0741	.1433	.2125	.3163	.5239	.0000
.0000	.0031	.0463	.0896	.1328	.1977	.3275	.0000
.0000	.0021	.0309	.0597	.0836	.1318	.2183	.0000
.0000	.0015	.0212	.0422	.0625	.0930	.1541	.0000
.0000	.0010	.0148	.0287	.0425	.0633	.1048	.0000
.0000	.0006	.0093	.0179	.0266	.0395	.0655	.0000
.0000	.0004	.0062	.0119	.0177	.0264	.0437	.0000

AFTER TAX CALCULATION FOR HOMEOWNERS

AVERAGE TAX FOR HH= 2 IS 246.302 TOTAL TAXES = 184660.

AVERAGE INCIDENCE FOR HH= 2 IS 0.0134

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.10981
2500	.06585
4000	.03454
6000	.02684
8500	.02663
12500	.02346
20000	.02447
30000	.02126

INCIDENCE MATRIX FOR HH= 2

.0000	.0103	.1545	.2986	.4428	.6590	♦1.0915	.0000
.0000	.0049	.0741	.1433	.2125	.3163	.5239	.0000
.0000	.0028	.0425	.0823	.1220	.1815	.3006	.0000
.0000	.0018	.0274	.0529	.0784	.1167	.1933	.0000
.0000	.0013	.0190	.0366	.0542	.0809	.1339	.0000
.0000	.0009	.0134	.0260	.0385	.0573	.0950	.0000
.0000	.0005	.0079	.0154	.0228	.0339	.0562	.0000
.0000	.0003	.0050	.0097	.0144	.0214	.0355	.0000

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)
 7 3,.7,.0346,7

AVERAGE TAX FOR HH= 3 IS 291.306 TOTAL TAXES = 137403.

AVERAGE INCIDENCE FOR HH= 3 IS 0.0244

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.11286
2500	.11335
4000	.05101
6000	.02905
8500	.02526
12500	.02069
20000	.02272
30000	.02674

INCIDENCE MATRIX FOR HH= 3

.0000	.0103	.1545	.2986	.4428	.6590	*1.0915	.0000
.0000	.0049	.0741	.1433	.2125	.3163	.5239	.0000
.0000	.0031	.0463	.0896	.1329	.1977	.3275	.0000
.0000	.0021	.0309	.0597	.0886	.1318	.2183	.0000
.0000	.0015	.0218	.0422	.0625	.0930	.1541	.0000
.0000	.0010	.0148	.0287	.0425	.0633	.1048	.0000
.0000	.0006	.0093	.0179	.0266	.0395	.0655	.0000
.0000	.0004	.0062	.0119	.0177	.0264	.0437	.0000

AFTER TAX CALCULATION FOR HOMEDOWNERS

AVERAGE TAX FOR HH= 3 IS 257.186 TOTAL TAXES = 121209.

AVERAGE INCIDENCE FOR HH= 3 IS 0.0102

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.11286
2500	.11335
4000	.04826
6000	.02596
8500	.02207
12500	.01890
20000	.01956
30000	.02183

INCIDENCE MATRIX FOR HH= 3

.0000	.0103	.1545	.2986	.4428	.6590	*1.0915	.0000
.0000	.0049	.0741	.1433	.2125	.3163	.5239	.0000
.0000	.0029	.0438	.0843	.1257	.1871	.3098	.0000
.0000	.0018	.0276	.0534	.0792	.1178	.1951	.0000
.0000	.0013	.0191	.0368	.0546	.0813	.1346	.0000
.0000	.0009	.0135	.0262	.0383	.0578	.0957	.0000
.0000	.0005	.0080	.0154	.0229	.0340	.0564	.0000
.0000	.0003	.0050	.0098	.0145	.0215	.0356	.0000

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)
 7 4,.7,.0346,7

AVERAGE TAX FOR HH= 4 IS 309.293 TOTAL TAXES = 137945.

AVERAGE INCIDENCE FOR HH= 4 IS 0.0241

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.12667
2500	.12370
4000	.03295
6000	.02750
8500	.02564
12500	.02238
20000	.02202
30000	.02787

INCIDENCE MATRIX FOR HH= 4

.0000	.0103	.1545	.2986	.4428	.6590	♦1.0915	.0000
.0000	.0049	.0741	.1433	.2125	.3163	.5239	.0000
.0000	.0031	.0463	.0396	.1328	.1977	.3275	.0000
.0000	.0021	.0309	.0597	.0886	.1318	.2183	.0000
.0000	.0015	.0218	.0422	.0625	.0930	.1541	.0000
.0000	.0010	.0148	.0287	.0425	.0633	.1048	.0000
.0000	.0006	.0093	.0179	.0266	.0395	.0655	.0000
.0000	.0004	.0062	.0119	.0177	.0264	.0437	.0000

AFTER TAX CALCULATION FOR HOMEOWNERS

AVERAGE TAX FOR HH= 4 IS 273.619 TOTAL TAXES = 122035.

AVERAGE INCIDENCE FOR HH= 4 IS 0.0107

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.12667
2500	.12370
4000	.03295
6000	.02490
8500	.02255
12500	.02062
20000	.01903
30000	.02283

INCIDENCE MATRIX FOR HH= 4

.0000	.0103	.1545	.2986	.4428	.6590	♦1.0915	.0000
.0000	.0049	.0741	.1433	.2125	.3163	.5239	.0000
.0000	.0031	.0463	.0896	.1328	.1977	.3275	.0000
.0000	.0019	.0280	.0541	.0802	.1193	.1976	.0000
.0000	.0013	.0192	.0371	.0550	.0818	.1356	.0000
.0000	.0009	.0137	.0264	.0392	.0583	.0965	.0000
.0000	.0005	.0080	.0155	.0230	.0342	.0566	.0000
.0000	.0003	.0051	.0098	.0145	.0216	.0352	.0000

INPUT HH SIZE,AV/MV RATIO,TAXRATE,OWNER(7)-RENTER(8)

7 5,.7,.0346,7

AVERAGE TAX FOR HH= 5 IS 412.31 TOTAL TAXES = 121179.

AVERAGE INCIDENCE FOR HH= 5 IS 0.0314

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.17319
2500	.16580
4000	.04466
6000	.02703
8500	.03938
12500	.02844
20000	.02854
30000	.03314

INCIDENCE MATRIX FOR HH= 5

.0000	.0103	.1545	.2986	.4428	.6590	♦1.0915	.0000
.0000	.0049	.0741	.1433	.2125	.3163	.5239	.0000
.0000	.0031	.0463	.0896	.1328	.1977	.3275	.0000
.0000	.0021	.0309	.0597	.0886	.1316	.2183	.0000
.0000	.0015	.0218	.0422	.0625	.0930	.1541	.0000
.0000	.0010	.0148	.0287	.0425	.0633	.1048	.0000
.0000	.0006	.0093	.0179	.0266	.0395	.0655	.0000
.0000	.0004	.0062	.0119	.0177	.0264	.0437	.0000

AFTER TAX CALCULATION FOR HOMEOWNERS

AVERAGE TAX FOR HH= 5 IS 358.003 TOTAL TAXES = 105218.

AVERAGE INCIDENCE FOR HH= 5 IS 0.0137

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.17319
2500	.16580
4000	.04466
6000	.02496
8500	.03434
12500	.02449
20000	.02478
30000	.02724

INCIDENCE MATRIX FOR HH= 5

.0000	.0103	.1545	.2986	.4428	.6590	♦1.0915	.0000
.0000	.0049	.0741	.1433	.2125	.3163	.5239	.0000
.0000	.0031	.0463	.0896	.1328	.1977	.3275	.0000
.0000	.0019	.0285	.0552	.0813	.1217	.2016	.0000
.0000	.0013	.0194	.0374	.0555	.0826	.1368	.0000
.0000	.0009	.0128	.0247	.0366	.0545	.0902	.0000
.0000	.0005	.0080	.0156	.0231	.0343	.0569	.0000
.0000	.0003	.0051	.0098	.0146	.0217	.0359	.0000

INPUT HH SIZE,AV/MW RATIO,TAXRATE,OWNER(7)-RENTER(8)

7 6,.7,.033+46,7

AVERAGE TAX FOR HH= 6 IS 478.844 TOTAL TAXES = 138206.

AVERAGE INCIDENCE FOR HH= 6 IS 0.0359

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.16811
2500	.14350
4000	.04285
6000	.03522
8500	.03995
12500	.03015
20000	.04096
30000	.02969

INCIDENCE MATRIX FOR HH= 6

.0000	.0103	.1545	.2986	.4428	.6590	♦1.0915	.0000
.0000	.0049	.0741	.1433	.2125	.3163	.5239	.0000
.0000	.0031	.0463	.0896	.1328	.1977	.3275	.0000
.0000	.0021	.0309	.0597	.0886	.1318	.2183	.0000
.0000	.0015	.0218	.0422	.0625	.0930	.1541	.0000
.0000	.0010	.0148	.0287	.0425	.0633	.1048	.0000
.0000	.0006	.0093	.0179	.0266	.0395	.0655	.0000
.0000	.0004	.0062	.0119	.0177	.0264	.0437	.0000

AFTER TAX CALCULATION FOR HOMEOWNERS

AVERAGE TAX FOR HH= 6 IS 418.456 TOTAL TAXES = 120777.

AVERAGE INCIDENCE FOR HH= 6 IS 0.0158

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	.16811
2500	.14350
4000	.04285
6000	.03369
8500	.03580
12500	.02604
20000	.03572
30000	.02449

INCIDENCE MATRIX FOR HH= 6

.0000	.0103	.1545	.2986	.4428	.6590	♦1.0915	.0000
.0000	.0049	.0741	.1433	.2125	.3163	.5239	.0000
.0000	.0031	.0463	.0896	.1328	.1977	.3275	.0000
.0000	.0020	.0296	.0571	.0847	.1261	.2088	.0000
.0000	.0013	.0195	.0378	.0560	.0834	.1381	.0000
.0000	.0009	.0128	.0248	.0367	.0546	.0905	.0000
.0000	.0005	.0081	.0156	.0232	.0345	.0571	.0000
.0000	.0003	.0051	.0099	.0146	.0217	.0360	.0000

OWNER PROGRESSIVE RATE CASE

(Taxes On Units Worth \$20,000
or More = .050

Taxes on Units Worth Less
Than \$20,000 = .025)

REALTAX 13:16EDT 09/25/72

H1 SIZE, AV/MV, TR1,TR2
 ? 1,1,.025,.05

AVERAGE TAX FOR H1= 1 IS 404.996 TOTAL TAXES = 121065.

AVERAGE INCIDENCE FOR H1= 1 IS 0.1021

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	✓.24166
2500	✓.15451
4000	✓.08215
6000	✓.07693
8500	✓.07143
12500	✓.06922
20000	.06130
30000	.05779

RUN

REALTAX 13:19EDT 09/25/72

H1 SIZE, AV/MV, TR1,TR2
 ? 2,1,.025,.05

AVERAGE TAX FOR H1= 2 IS 521.782 TOTAL TAXES = 391197.

AVERAGE INCIDENCE FOR H1= 2 IS 0.0568

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	✓.23033
2500	✓.13421
4000	✓.08039
6000	✓.06209
8500	✓.05556
12500	✓.04688
20000	.05197
30000	.04659

013 FILES XHH3
RUN

REALTAX 13:20EDT 09/25/72

FILE SIZE, AV/MV, TR1, TR2
2 3,1, .025, .05

AVERAGE TAX FOR HUF 3 IS 543.415 TOTAL TAXES = 25631.

AVERAGE INCIDENCE FOR HUF 3 IS 0.0456

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	✓.26432
2500	✓.21190
4000	✓.09822
6000	✓.06918
8500	✓.04820
12500	✓.03836
20000	.04103
30000	.04781

013 FILES XHH4
RUN

REALTAX 13:21EDT 09/25/72

FILE SIZE, AV/MV, TR1, TR2
2 4,1, .025, .05

AVERAGE TAX FOR HUF 4 IS 561.138 TOTAL TAXES = 250268.

AVERAGE INCIDENCE FOR HUF 4 IS 0.0439

AVERAGE INCIDENCE BY INCOME CLASS

INCOME AVERAGE INCIDENCE

1200	✓.29286
2500	✓.22970
4000	✓.08364
6000	✓.05810
8500	✓.04930
12500	✓.03748
20000	.03983
30000	.05031

013 FILES XHH5
RUN

REALTAX 13:22EDT 09/25/72

FILE SIZE, AV/MV, TR1, TR2
2 5,1, .025, .05

AVERAGE TAX FOR HUF 5 IS 757.28 TOTAL TAXES = 22256.

AVERAGE INCIDENCE FOR HUF 5 IS 0.0579

AVERAGE INCIDENCE BY INCOME CLASS
INCOME AVERAGE INCIDENCE

1200	✓.34091
2500	✓.30432
4000	✓.09594
6000	✓.05418
8500	✓.07367
12500	✓.05260
20000	.05161
30000	.05894

013 FILES XHH6
RUN

REALTAX 13:23EDT 09/25/72

FILE SIZE, AV/MV, TR1, TR2
2 6,1, .025, .05

AVERAGE TAX FOR HUF 6 IS 873.121 TOTAL TAXES = 252005.

AVERAGE INCIDENCE FOR HUF 6 IS 0.0657

AVERAGE INCIDENCE BY INCOME CLASS
INCOME AVERAGE INCIDENCE

1200	✓.33693
2500	✓.27227
4000	✓.09590
6000	✓.07181
8500	✓.07731
12500	✓.05467
20000	.07248
30000	.05204

PROPERTY DATA BASE FOR MUNICIPALITIES

In order to analyze changes in the composition of the property tax base and the characteristics of the concentration of property values around the State by locality, it was necessary to construct a data base built from the records of the State Tax Equalization Board. This appendix briefly reviews the format of the data base, the programs used to manipulate it - as well as possible further uses of this information.

DATA BASE FORMAT

The numbers on the computer printout, entitled "Reconciliation of Variances in Assessed Valuations" (see Exhibit C - 1, following), are Statewide totals of assessed value for each property class. Data are reported for 68 and 69, and 69 and 70, by type of property. Variances between 68 - 69 and 69 - 70 are reconciled in terms of the find of increase or decrease reported. This output is basically a reconstruction of the data sheet, Form STEB-111, provided by the Equalization Board.

The State Tax Equalization Board maintains these data sheets on each municipality in the State and reconciles variances from 1 year to the next each year as part of its contribution to the Department of Education's school aid allocation formula. An example of this data sheet for one municipality is provided in Exhibit C-2. Data sheets for each municipality were xeroxed and keypunched, and the resulting card file became the data base for subsequent analysis.

SUMMARY OF ASSESSED VALUES BY CLASS OF PROPERTY

STATE
COUNTY NO. 47
NO. OF MUNICIPALITIES 24

RECONCILIATION OF VARIANCES IN 1967 ASSESSED VALUATIONS

TYPE PROPERTY	COMPUTATION OF VARIANCE			RECONCILIATION OF VARIANCE				
	1968 ASSESSED VALUATION	1969 ASSESSED VALUATION	VARIANCE IN 1968 OVER 1969	NEW CONSTRUCTION	ANNEXATIONS DEPLETION	REVISION	COMPUTED ADJUSTMENT NO.	ADJ.
1. RESIDENTIAL	11005544.203	11435568.875	430024.798	261837.444	-32163.902	124881.451	75420.195	577.
2. LOTS	205429.827	212961.678	7531.980	0.130	6906.926	11062.062	-10436.749	155.
3. INDUSTRIAL	1649510.158	1704459.818	54949.790	46123.074	-7046.303	-773.347	16646.757	99.
4. COMMERCIAL	4333833.289	4504684.513	170851.367	202906.977	-52742.006	-2897.645	23584.430	160.
5. AGRICULTURAL	735564.354	749826.688	14262.462	7388.990	-3564.397	3779.588	6658.671	145.
6. OTHERS	202394.202	207667.332	5273.255	19.370	-6644.335	97212.631	-85314.024	0.
7. TOTALS	18132275.367	18815168.234	682893.005	518325.337	-95254.668	233264.090	26558.634	449.

RECONCILIATION OF VARIANCES IN 1970 ASSESSED VALUATIONS

TYPE PROPERTY	COMPUTATION OF VARIANCE			RECONCILIATION OF VARIANCE				
	1969 ASSESSED VALUATION	1970 ASSESSED VALUATION	VARIANCE IN 1969 OVER 1970	NEW CONSTRUCTION	ANNEXATIONS DEPLETION	REVISION	COMPUTED ADJUSTMENT NO.	ADJ.
1. RESIDENTIAL	11456661.183	11958774.199	502113.144	271846.471	-33920.300	265324.222	-1136.857	371.
2. LOTS	215326.378	245571.765	30245.517	0.130	16025.949	14142.083	77.744	303.
3. INDUSTRIAL	1706460.933	1747380.947	40920.146	51911.046	-13872.840	1429.507	1452.821	216.
4. COMMERCIAL	4505425.228	4733722.683	228297.572	268292.753	-35564.967	-773.046	-3656.778	309.
5. AGRICULTURAL	759909.840	777783.201	17873.490	7727.187	-1052.208	5170.202	6028.697	278.
6. OTHERS	208193.869	213218.308	5024.571	16.173	-992.366	21586.320	-15585.166	0.
7. TOTALS	18851976.765	19676450.429	824473.792	599793.108	-69377.382	306878.642	-12820.187	87.

STEB FORM 111 FOR MUNICIPALITIES

STEB Form 111

RECONCILIATION OF VARIANCES IN 1967 ASSESSED VALUATIONS

School District 111County 111

Type of Property	Computation of Variance			Reconciliation of Variance			
	1967 Assessed Valuation	1968 Assessed Valuation	Variance in 1967 over 1968 + or -	Factors Affecting Market Value		Reclassification + or -	Revision + or -
				New Construction (Additions and Alterations)	Annexations Depletion Exempt + or -		
Residential	4,123,650	4,215,520	91,870	172,720	60,100		19,700
Lots	162,470	162,890	420		420		
Industrial	710,310	710,310					
Commercial	1,288,765	1,325,185	36,420	46,150	100,30		
Agricultural	1,381,270	1,368,930	12,340	1600	1,1940		
Other	95,750	86,660	9,090		9,040		
TOTALS	8,177,030	8,305,310	108,280	220,970	92,790		19,700

Remarks:

11/1/68

Thus, the data base consists of information similar to that on STEB Form 111, for the 3 years 68, 69, and 70 for each municipality in the State. The first card for each municipality provides a 2-digit county code, a 1-digit class code, and a 4-digit municipal code. A code book that indicates county, municipality, school district, and class of municipality was provided by STEB to prepare this card.

The next 14 cards contain elements of the information from each line. For example, the second card has elements of the data on residential assessed values and variances for 1968 and 1969. The ninth card has residential assessed value and variance information for 1969 and 1970. Not all of the information is coded, since some of the data elements are either calculable or repeated. For example, the ninth through fifteenth cards do not contain data on 1969 assessed values since that information is available on the second through eighth cards. In addition, variance data are not on the cards since they are calculable as the difference between the 2 years' assessed values for each class of property.

EDITING AND ANALYTICAL PROGRAMS

In building this data base, it was necessary to provide editing routines that would check the consistency of the punched cards. The editing requirements were that:

1. Calculated year-to-year variances had to equal the sum of reported variances, for each property class

2. Total variance for the sum of all properties had to equal the sum of variances for all property classes.

If calculated variances for each property class were not equal to the sum of reported variances, then the editing program supplied a computed adjustment. In most cases, computed adjustments were very small and attributable to round-off errors. In some cases, however, computed adjustments were a major component in the change in assessed values from year to year. In these cases, municipalities had typically undergone major revaluation programs.

Because the number of municipalities is so great (2,675), a more manageable set of data points was required. For this purpose, municipalities were aggregated into counties based on the county codes provided with each set of municipal cards. A program was prepared to sum the data for all municipalities in a given county, thus creating a summary sheet similar to the STEB Form 111. These county summaries then became the key data file for subsequent analysis.

A ranking of counties by various criteria proved to be the best approach to presenting the data for this relatively large data base. Programs were prepared that ranked counties by such criteria as:

- ¶ Residential property (distribution of residential property in the State)
- ¶ Residential property as a percentage of all property in the county
(concentration of property in counties in the State)
- ¶ New construction of residential property as a percentage of all new construction in the county (distribution of new construction around the State)

¶ New construction of residential property as a percentage of increase in assessed value (contribution of new construction to increases in the tax base by county).

Each of these analyses, among others, was repeated for each property class. The results of these analyses are presented in Chapter 4 of this report.

FURTHER USE OF THE DATA BASE

This data base was designed to be as flexible and as useful as possible. It has already found application in estimating flood damage to real property in specific communities in the State. In addition, it may be useful to the Department of Community Affairs and the Department of Education, among others, in their working relationships with local governments and school districts.

For example, it would be possible to test school allocation formulas that would make allowances for differing concentrations of property by property class. An objective might be to determine whether residential property taxes could be eliminated or reduced, to be supplanted by an allocation of State funds in some inverse proportion to the concentration of commercial, industrial, agricultural, and other classes of property. To carry out this test, the market values of these classes of property in each municipality would need to be determined. Then, municipalities would have to be aggregated into school districts for analysis purposes.

The data base was designed to facilitate such exercises. Our purpose in presenting this detailed description of the data base is to facilitate its use by these or other interested State agencies.



